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THE Chicago banks have passed through the ordeal imposed upon them by the "smash up" in their wheat market in a manner that commands at once the highest praise and the greatest admiration. The crisis has passed away—the feverish anxiety has subsided, the bulls have been beaten, the artificial rise brought about by unscrupulous speculation could not be maintained, and the cereals have come back to their normal value. If the managers of the larger financial houses had not displayed a rare amount of good judgment, caution and general business acumen, we should, no doubt, have witnessed one of the most serious commercial disasters ever experienced in the West. As it is, none but a few reckless or weak firms have been seriously injured, and, despite the enormous stocks of wheat now on hand, and the healthful indications of a plenteous new crop, there are sufficient promises of increased demands for exportation to quiet all fears for the immediate future.

It is comforting to reflect, although probably few people give the matter much consideration, that while so many scheming brains have been agitated and tortured by such weighty doubts and fears, while so many fortunes have been lost and gained or trembled in the balance, not one single grain of the precious wheat itself has been placed beyond the reach of the toiling population.

THE Prussian government in November last issued strict orders prohibiting the admission of foreigners to any of its mines or works without a special permit from the minister, and it is said that this permit is obtained with the greatest difficulty.

An exception is made for students at the Prussian schools who visit in excursions when accompanied by the professors.

This unworthy order will be a great disappointment and drawback to American engineers who may visit Prussia, and it should prove extremely mortifying to German engineers, who are shown such unbounded hospitality in this country.

Of course it does not and can not prevent any one from obtaining any desired information; it merely necessitates his buying it from a German engineer, so that if the object of the government be to prevent foreigners from knowing what is going on in German mines and works, it is as ineffectual as it is stupid and discourteous. We trust no American mines or works will think it worth while to retaliate on German visiting engineers. A more enlightened policy would be to profit by the visits and criticisms of foreign engineers, who may point out improvements in the old-fashioned methods still obtaining at most of the Prussian works.

A SURPRISE CIRCULAR.

We can not undertake to detect and correct all the misquotations and misuses of the Reports of the former U. S. Commissioner of Mining Statistics. But when an instance is brought to our notice, we usually take occasion to expose it. A case of this kind is presented by the prospectus of the Surprise Silver Mining Company, of Red Oak, Iowa, which contains the following passage:

"Some years ago Professor Raymond was authorized by Congress to inspect and investigate our gold and silver mining interests. The following extract is taken from his report on the resources of Arizona. This report, with all others made by Professor Raymond, was published by the authority of the government, and may be taken as official and reliable:

"'Now I come to the mineral resources of the country, and I feel that I can speak of this branch with more confidence than any other, because I have spent all my manhood in the mines—for eight years in succession I worked at placer mining, lived in a cabin and cooked my own meals, and for nearly twenty years have been connected with mining enterprises of one kind or another. I have taken part in gold and silver quartz mining in California and Nevada, and have examined the principal mines and reduction-works of Europe. My previous knowledge of mining has naturally led me to take special interest in examining the mineral resources of this country. I have traveled in various directions from the southern boundary of Arizona north to this point. I have found the mountains threaded with veins rich in silver, gold and copper, far beyond any thing I have ever seen elsewhere, and I here predict that the time will come in the not very far off future *when Arizona will produce more gold and silver than all the balance of the Pacific coast.*'"

The above extract (except that it lacks the emphasis of italics) may be found on page 322 of the Report of the U. S. Commissioner of Mining Statistics for the year 1839, published in 1870. It occurs in a passage given in small type as part of an address delivered at Prescott, Arizona, by A. P. SAFFORD, the governor of the territory. The use of it here, made as an "official" and "reliable" opinion of Dr. RAYMOND, is a fraud of the meanest order.

Out of curiosity, we have glanced over the remainder of this prospectus, and find that on the strength of half a dozen general statements of the wealth of Arizona, and two claims, showing croppings, and some shafts, the deepest of which is "said to be" fifty or sixty feet deep, and partially filled with water, and a tunnel and a certificate from the superintendent that the veins are true fissures, and assay "from $18 to $145," a company of two million dollars capital, in $20 shares, was organized, of which 27,000 shares were working capital. This was offered for sale to pay for "reduction-works." But under the head of "LATEST," the prospectus says:

"The company has recently had quite a large quantity of ore from these mines sent to San Francisco, where they had it worked by the most scientific metallurgists of that city. They pronounce it *free* milling ore, working very easily. They stated that there was a tendency in this kind of ore to turn to smelting ore, and advised that the shafts be sunk deeper and the tunnel be put in further before reducing machinery should be purchased. Acting on their advice, the Executive Committee have ordered the tunnel on the Surprise to be put in fifty feet further and the shaft on the Arnold to be sunk the same distance from the present bottom of the shaft. This work is being pushed as fast as possible. Whether this work will be pushed further before reducing machinery is bought will depend on the tendencies of the ore at these points. In the meantime, the Committee on Machinery are getting prices from leading manufacturers; and it is the determination to push the business just as fast as it can be done with business prudence."

Although there is no date to this prospectus, we have reason to suspect that the whole affair lapsed, some years ago, into the limbo of vanity. The "Surprise" proved to be no surprise, after all. The "tendency in this kind of ore to turn into smelting ore" was apparently accompanied with a tendency to turn into dead rock. At all events, we do not find in reports of recent years from the Tyndall district in Arizona, where this company's claims were situated, any account of their mining operations; but we do find a statement that "this camp has suffered much from bad management," which does not seem unlikely.

If the Surprise Silver Mining Company is comfortably dead and buried, we do not care to waste either indignation or instruction upon it. The present article may, therefore, be considered as merely a belated funeral sermon, conveying admonitions to the living. And to them we say,

Dearly beloved, be not deceived. Croppings of long extent, and specimen assays of wide range, and prophecies of smelting-ore that shall be, and even the speeches of Governors, quoted by Commissioners and garbled by promoters, do not constitute a mine, still less assure a dividend. *

THE PROSTITUTION OF PERSONAL REPUTATION IN THE CAUSE OF A MINE GAMBLE.

The manipulators of the worthless Security mine, finding that the forewarned public declined to buy, and getting tired of the wearisome round of "washed" sales on the exchanges, conceived the brilliant though venerable idea of making an excursion to the mines in the hope of booming the stock.

A special car, plenty of cool things, some good talkers, and no experts, or any one who could expose the most absurd statements or theories, were the foundations for the boom. Of course, it goes without saying the superintendent of the mine and mill had carefully prepared for the reception of the tenderfeet, and had the rich spots in the mine brought out prominently and every thing accidentally convenient for the visitors to take samples in the right place. The rich ore in the mill was laboriously collected for months past, and the tenderfoot got the impression that the mine was filled with such ore.

We are told in the *Boston Globe*, which has a page puff of the mine (was it $1 a line, or was it paid for in a call on the stock?) that "one of the best judges of ore in the party was Mr. JOHN A. MACPHERSON, Chairman of the Consolidated Stock Exchange, New York," which may very well be, but when they describe this gentleman as "a thorough mining expert," "one whose opinion carries much weight," how he must have smiled, and others laughed outright.

It is very refreshing to hear this car-load of tenderfeet talk about the method of formation of this ore-deposit, the value of the mine, the aver age richness of the ore, and the certainty of its growing richer and richer as depth is attained—subjects about which they know no more than they do of the thickness of the solid crust of the moon. Perhaps the most curious and lamentable thing about the matter is the unanimity with which some twenty-six ostensibly reputable men positively assert things which they could not have personal knowledge of and prostitute themselves to be mere "tooters" for a disreputable scheme when they might easily have ascertained the facts of record which are in direct contradiction to their statements.

JOHN H. MACPHERSON, above mentioned; Hon. J. WILLARD RICE, of Rice, Kendall & Co., Boston; F. G. STOREY, Superintendent of Security Safe Deposit Vaults, Boston—it is to be hoped that his depositors there will fare better than those who invest in Security mine on his positive assertion that "the ore is certainly much richer in the center of the hill" where they "will soon reach it."

A. L. AMES, of Peabody; Dr. HENRY A. CHOAT, druggist, of Bowdoin Square, Boston; LEVI B. GAY, of the *Banker and Tradesman*; BENJ. DICKERMAN, Chatham Row, Boston; A. L. SEWELL, of 10 Wall street, New York; H. A. WRIGHT, of Doran, Wright & Co., New York; GOUVERNEUR MORRIS, New York; THOMAS REED, Jr., New York Stock Exchange; Hon. J. L. KAMRAR, of Webster City, Ia., of Hamilton County National Bank; Captain LEWIS CRARY, of Webster City, Ia., also of the Hamilton County National Bank. If these gentlemen, in the management of their banking business, indorse as confidently and as freely, and with as little knowledge as they have in this case, an early collapse of their bank can be reasonably predicted. J. W. WILSON, of Syracuse, N. Y.; EDWARD E. EWERS, of Syracuse, N. Y.; R. J. WILSON, of Russelville, Ark.; THOS. J. WYSE, of Greenville, Ark.; N. F. WILKINS, of Senter & Co., St. Louis, Mo.; John A. LINDSAY, Minturn, Ark.; T. A. KELLY, Cleveland, Ohio; GEO. W. WRIGHT, Cleveland, Ohio; M. B. JONES, Batesville, Miss.; J. P. COFFIN, Powhattan, Ark.; C. A. HAYDEN, Rochester, N. Y.

These gentlemen unanimously indorse Superintendent JOHNSON and his theory of the ore formation, and positively assert the great increase in richness that *will be found* when the center of the hill is pierced.

One of them thus explains

SUPERINTENDENT JOHNSON'S THEORY.

"The ore looks just as Superintendent Johnson said, as though it had been forced from the earth by volcanic action, for the marks of fusion or lava are very apparent. His theory is evidently correct. The action of nature in this hill, is on the same principle as that of boiling liquid in a kettle, with the action of the heat the poorer matter ascends and floats on top, leaving the better substance at the bottom. So, evidently, is the case in this mine. The ore which has been found on and near the surface of the hill being driven up by volcanic action, which left the more solid substance in the bottom or center of the hill. I believe the mine is a big thing. The substance referred to, the superintendent says, is mat, or almost fine silver.

These reputable gentlemen all assert that the *average* ore is very rich, and will be richer in accord with this theory, and all say the mine *will soon* become a dividend payer. Some put the dividends at more than a million dollars a year, and yet several of them lay great stress on the advantage to the stockholders in having the stock *unassessable*. They generally prepare the way for no dividends by advising that the dividends for some time be applied to creating a reserve fund—so they will, undoubtedly; but it will be in the pockets of the enterprising gentlemen who have purchased for much less than $100,000 this well-known property.

The ENGINEERING AND MINING JOURNAL of February 19th, said, among other things:

"The Security mine, known to ancient history as the Silver Cliff mine of Rosita, Colorado, has through a monotonously disastrous existence, left an extremely ill-savored reputation. The ore is a very low grade, silver-bearing manganese ore, which can be worked cheaply, but, thus far, with only losses for those who have been interested in it.

"The Security stock was, we are informed, refused enlistment at the Boston Stock Exchange after full examination, and then it came here. The capital stock, which was originally $100,000, is now $10,000,000, the increase having been made, we understand, by two men, one owning $98,000 and the other $2000 of the original $100,000.

"The statement the officers of the company make to the Stock and Petroleum Exchange here speaks of 'nearly fifty mines from 70 to 800 feet in depth,' of 'extensive tunnels in some of these at various levels,' and of 'a mountain of chloride and manganese carrying silver, thickly impregnated with pockets of horn-silver,' and '200,000 tons of milling ore in the dumps, estimated value $1,770,000, besides 500 tons of higher grade ore, estimated value $190,000.' 'Ore in sight estimated to be of the value of $14,500,000.' We are told that this 'mountain of chloride,' with 'pockets of horn-silver,' is in 'true fissure veins.'"

On March 19th, we quoted again from this statement as follows:

"The company claims to have on the dumps 90,000 tons carrying 8-oz. silver per ton, 5000 tons 35 oz. ore, and 2000 tons 80 oz. ore, and 50 tons running from 400 to 1100 oz. silver per ton."

These are the claims that nearly every one of the gentlemen named above not only personally indorses, and says that the richness of the mine "exceeds the claims made for it." On March 19th we stated:

"We learn from thoroughly reliable sources that about 150 tons of Security Company's concentrates (not mere ore or rich ore, but concentrates), ran 46 ounces silver and 56 per cent silica, while a few sacks of selected ore from the new strike contained 75 ounces per ton. And a lot of the company's 'lead ore' carried 21 per cent lead and 13 ounces silver, besides being highly siliceous."

This testimony can not be questioned; it is on the very highest authority. Another of our correspondents wrote us at that time:

"The Security is another name for the old Silver Cliff Company, which was an immense fraud."

While *The Solid Muldoon*, published near the mine and familiar with its entire history, says:

"We pronounce the Security Mining and Milling Company of Silver Cliff, Rosita, and Boston a gigantic swindle of the worst description, and are prepared to back up our assertion before any court in the land."

This was published months ago, and we have not yet heard of any one calling on the *Muldoon* to prove its assertion.

Yet a party of reputable gentlemen, totally ignorant of mining or of the past history of the mine, indorse these wild exaggerations out of gratitude for a free excursion. Sell themselves, in fact, and lend their names to induce the public to buy this precious stock at one hundred times its value. If any of these gentlemen repudiates the remarks attributed to him in the *Boston Globe*, and reprinted in the *Wall Street News* of 16th June, we shall be pleased to give him an opportunity to do so in our columns.

THE BRICK INDUSTRY ABOUT NEW YORK CITY.*

By Calvin Tomkins, C. E.

(*Concluded from page 419.*)

The brick made along Haverstraw Bay bring better prices and are of superior quality to those made elsewhere; this is due principally to two causes:

1st. The tempering sand in this section is abundant and of the best quality. The clay is also claimed to be of superior quality.

2d. The experience of brickmakers counts for more, as the industry has been of longer standing. Generally speaking, the bricks possess a finer finish and are more regular in form than those made at other points, and they are stronger than other bricks. Deposits of clay in this section, when adjacent to the river, possess a high value. Banks can seldom be bought, as the owners prefer to work them on the royalty system which prevails. The bank owners are, in most instances, retired brickmakers. The plant, consisting generally of machinery, docks, sheds, etc., goes with the right to use clay and sand, and the lessee agrees to pay so much per thousand brick made, binding himself to make a specified quantity, or more, each year. Royalties along Haverstraw Bay range from 50 cents to $1.50 per thousand bricks made; the difference being accounted for in comparative natural advantages of the yard, such as length of haul, quality of plant, etc. Up-river yards, with the exception of some along Newburg Bay, command lower rents. Long Island, Jersey, and many of the up-river yards are worked at first hands, the margins not yet being sufficient to admit of two profits.

A thin layer of yellow clay overlies the blue clay about Haverstraw, and, mixed with the latter, gives color to the brick. The method of manufacture may be briefly described as follows: After stripping the sand, the stiff clay is cut out in benches and carted to the yard. In some instances, the mud is tempered by a vertical wheel revolving in a circular pit, 2½ feet deep by 30 feet diameter. In most cases, however, the sand, clay, and coal-dust are spread in alternate layers in a sod pit 16 feet by 12 feet by 4 feet, a bushel of coal-dust being allowed to each thousand of brick. The pits are filled in the afternoon and the material shoveled directly from them into the hopper of the brick machine, which pugs it and presses it into the molds. The molds are taken to the drying yard, dumped there, the green brick turned on their edges after a few hours

* Abstract of a paper read before the American Society of Civil Engineers.

exposure, spatted, and later hacked up, where they remain under battens for several days till they attain sufficient strength to bear their weight in the kilns.

The kilns are the usual type known as clamps. In a few instances, they have stationary walls; but as a rule, they are entirely constructed of the brick to be burnt. After being daubed with mud on the sides and cushioned with sand held in place by battens at the ends, they are fired with wood under the arches. Coal, on grate bars, is used in New Jersey under the arches. The kilns are built under rough sheds, and run along the river front in most instances. The brick are loaded on the boats by barrows. Three hundred thousand to a million brick are burnt in a kiln, allowing thirty-five to forty thousand to an arch. The kilns are built with a slight batter, 50 brick high on edge, and 36 feet wide at the base. The bricks are set crossing each other, three on three, with vents from ¼ to ⅜ of an inch between.

Barometric changes, changes of temperature, and of the wind, have to be taken into consideration by the burner. As a matter of course, bad burns occasionally are met with. The arch brick are always overburnt, and the outside brick underburnt. This constant loss, in conjunction with the loss of green brick damaged by weather, is a serious drain on the industry, and also tends to deteriorate the quality, as it is the general custom to work off the greater part of these poor bricks by inserting them among the good brick. Brickmakers have estimated that, by the present process, a twelfth of the kiln turns out pale brick, and a twentieth arch brick.

One man to each thousand brick made per day, is the labor estimate usually allowed.

Brick are designated according to quality as

Good hards, which includes all well made and well burnt brick.

Pales, which are under burnt.

Arches, which are over burnt, usually at the ends.

Swelled brick, sometimes called *lammies*.

Spotted brick, more or less mottled in appearance.

White-washed brick, in which the alkalies have effloresced in the kiln due principally to an excess of water).

Brittle brick, which have become broken brick.

Washed brick, which have been pitted by rain when green.

The regulation size for common brick, as far as such standard exists, is 8 inches × 3½ inches × 2¼ inches. In the trade parlance, five adjacent brick on edge should run 11¼ inches through.

Much criticism has been directed against the brick industry of this section for its lack of enthusiasm in taking hold of improved methods. Doubtless much of this criticism is well founded, for certainly very few changes have been made, while in the West and South many improvements have been introduced, such as appliances for grinding the clay and puddling the mud, tunnel and oven driers in which the brick are dried quickly and without risk of exposure to the weather. Bricks are burnt in permanent kilns, and in continuous kilns, by the use of which a great saving of heat is accomplished. Coal takes the place of cord wood, and it is claimed that gas has also been successfully used.

To all this brick men reply that these improvements may be well enough adapted to yards in other localities, but about New York, where it is necessary to crowd a year's work into six months, they have not the requisite time or yard room to manufacture by other methods than that now in use.

Probably a further explanation of this apparent inertia is to be found in the fact that most of the older established yards, and those most profitable along Haverstraw and Newburg bays, are owned by one set of men and worked by another set.

The following are the prices reported by the *Record and Guide* for cargo lots on dock at New York City; quotations taken first week in July for the years 1873 to 1886, inclusive:

	Jerseys.	Up-Rivers.	Haverstraws.
1873	$6.00 to $6.50	$6.50 to $7.50	$7.00 to $8.50
1874	5.50 to 6.00	5.50 to 6.50	6.00 to 8.00
1875	5.00 to 5.25	5.00 to 5.50	5.75 to 6.50
1876	....	4.00 to 4.75	4.50 to 5.50
1877	....	3.75 to 4.25	4.50 to 6.00
1878	....	3.25 to 4.00	4.00 to 5.00
1879	4.50 to 5.00	5.00 to 5.25	5.38 to 6.00
1880	....	4.50 to 5.00	5.00 to 6.50
1881	....	7.38 to 7.62	7.50 to 8.00
1882	6.00 to 6.25	6.25 to 6.75	6.75 to 7.50
1883	6.50	6.50 to 6.25	6.50 to 7.00
1884	4.75 to 5.50	5.25 to 6.00	6.00 to 6.50
1885	5.50 to 6.00	6.12 to 6.50	6.50 to 7.00
1886	5.50 to 6.00	6.25 to 6.62	6.75 to 7.25

The above table goes to show that when bricks realize much less than $4.50 per thousand it is not profitable to send them to market.

BILL FOR THE RELIEF OF THE MINING INDUSTRY IN MEXICO.

The Mexican *Financier* says the following is the corrected official text of the bill which has passed both branches of Congress and will undoubtedly be made law by the President's signature:

ARTICLE 1. From the promulgation of this law, freedom from all federal, local, and municipal taxes, with the exception of the stamp tax, will be granted to all coal mines, petroleum springs, iron and quicksilver mines, as well as their products; to native malleable and cast-iron in bars, rods, pigs, plates, and rails; and to native quicksilver, the liquid product of the minerals from which it is extracted.

ART. 2. The interior State duties, portage tax, etc., however denominated, shall not be levied on the movement, within the Republic, of gold or silver ore, bullion or coin, or on the circulation of the other metals and mineral products.

ART. 3. Quicksilver, whatever may be its origin, shall be exempt from any tax, however denominated.

ART. 4. Beyond the coinage tax, the mines not excepted in article 1st, and their products, shall be subjected to but one tax, which shall be placed on the value of the metal or mineral product without allowance for expenses of production, but which, however, shall never exceed two per cent of that value.

ART. 5. The tax specified in the previous article shall be assessed for the State in which the mine is located or for the federal government when located in the federal district; and the amount of such tax shall therefore be fixed annually by the several State Legislatures within the limits prescribed, and, in cases pertaining to it, by the National Congress, attention being given to the condition of the treasury and consideration being had for the protection which should be given to the mining industry.

ART. 6. Reduction works and metallurgical (assay) offices of every class, when in operation, shall pay to the State in which they are located or to the federal district, a single tax which shall not exceed six per thousand on the value of the estate and machinery.

ART. 7. The federation shall receive, as provided, 25 per cent of the taxes levied by the several States in accordance with the previous regulations.

ART. 8. Any other tax, except the stamp tax, however denominated, on the extract, product or profit of mine or reduction, on the product or profit of mineral establishments, on the capital invested in mines or mills, shares of stock and bonds, or on any kind of metallurgical offices, on transfer deeds to mines and mills and on all stock representing the same, is positively forbidden by this law.

ART. 9. The States are forbidden to charge any tax for the denouncing, possession or other formalities or operations necessary for the acquisition of mining properties or reduction works, or for the organization of stock companies, or the transfer or issue of bonds and stock.

ART 10. The Executive is authorized to make contracts by granting special franchises and ample concessions, without prejudice to the rights of third parties, to companies who guarantee the investment of capital in mining, the extent of territory granted being considered in connection with the amount of capital to be invested, the nature of the mineral, and the conditions of the locality, in conformity with the following rules:

A. The duration of the franchises and special concessions shall in no case exceed ten years.

B. The minimum of capital to be invested in prospecting and operating shall be $200,000 within five years.

C. This capital shall be exempt during ten years from all federal tax except the stamp tax.

D. The maximum number of properties which may be granted in ordinary cases shall be twenty, together or separate, the number being determined by the rules and regulations of the respective department of the Ministry of Public Works in proportion to the capital, quality, and quantity of mineral and conditions of the locality, the owners always enjoying the greatest liberty to work on one or all of the properties with not less than twenty operatives.

E. Only in case of discovery or re-establishment of mining districts can the number of claims so conveyed exceed, according to circumstances, the number indicated by one half.

F. The extent of such properties shall be subject to the requirements of the mining code, except in the case of gold placers, in which case the property shall be considered of irregular yield.

G. Of the twenty claims mentioned in subdivision *D* and the thirty in *E*, only ten can be located on one vein in the first case and fifteen in the second as the maximum, either continuously or separate, unless there be but one vein in the mining district; in which case the whole number may be located upon it.

H. These properties may be protected by the Ministry of Public Works in cases seriously contested, during the space of two years, a maximum limit that must not be exceeded.

I. This extraordinary protection can be conceded only once, whatever causes may be alleged, but others can be granted in accordance with the requirements of the mining code now in force, but no protection shall be regarded as a motive for extending the privilege longer than the ten years mentioned in the respective contract.

J. The Ministry of Public Works will authorize owners of claims, if it may be considered proper to do so, to divide and transfer with previous consent of the ministry, the concessions contained in the contracts, always provided that the new mining companies shall assume their proportion of the obligations.

K. All these companies shall enjoy the rights and be subject to the obligations which the mining code prescribes, on the expiration of the time specified in their contracts.

ART. 11. For the term of ten years the industries of pisciculture, grape culture, and silkworm culture shall be exempt from all federal tax except the stamp tax. For the enjoyment of this exemption said industries shall be subject to the conditions fixed by the respective regulations.

ART. 12. The Executive is authorized to contract with the railroads for a reduction of the freight rates on native products destined for exportation, on the following bases:

A. The Executive shall fix in his annual estimate the amount necessary to cover the sum charged by the railroads for services rendered under this head.

B. The Ministries of Finance and Public Works shall dictate two months before the expiration of the fiscal term the necessary measures whereby exporters may avail themselves of the advantages specified.

C. The exports which shall be entitled to a freight reduction shall be divided into four classes, among which, according to the importance they acquire and the protection they need, the Executive shall locate them every year, publishing with due notice the respective classification.

The provisions of this law shall take effect in the different States July 1st.

New Cruisers for the Navy.—The Board, consisting of Captain Ramsey, Chief Engineer Kiersted, Commander Goodrich, Lieutenant Knox, Assistant Naval Constructor Bowler, and Messrs. Burgess and Wilson, which was appointed by Secretary Whitney to select suitable designs for a 6000-ton armored cruiser, and an armored vessel of the same size from the competitive designs received in answer to the department's offer of $10,000 each for two acceptable plans, has approved the designs of an armored battleship submitted by the Barrow Ship Building Company, of England. The Board came to no decision in the selection of a design for the armored cruiser, and the original plans prepared by the Bureau of Construction will probably be used.

THE STERLING FRICTION CLUTCH.

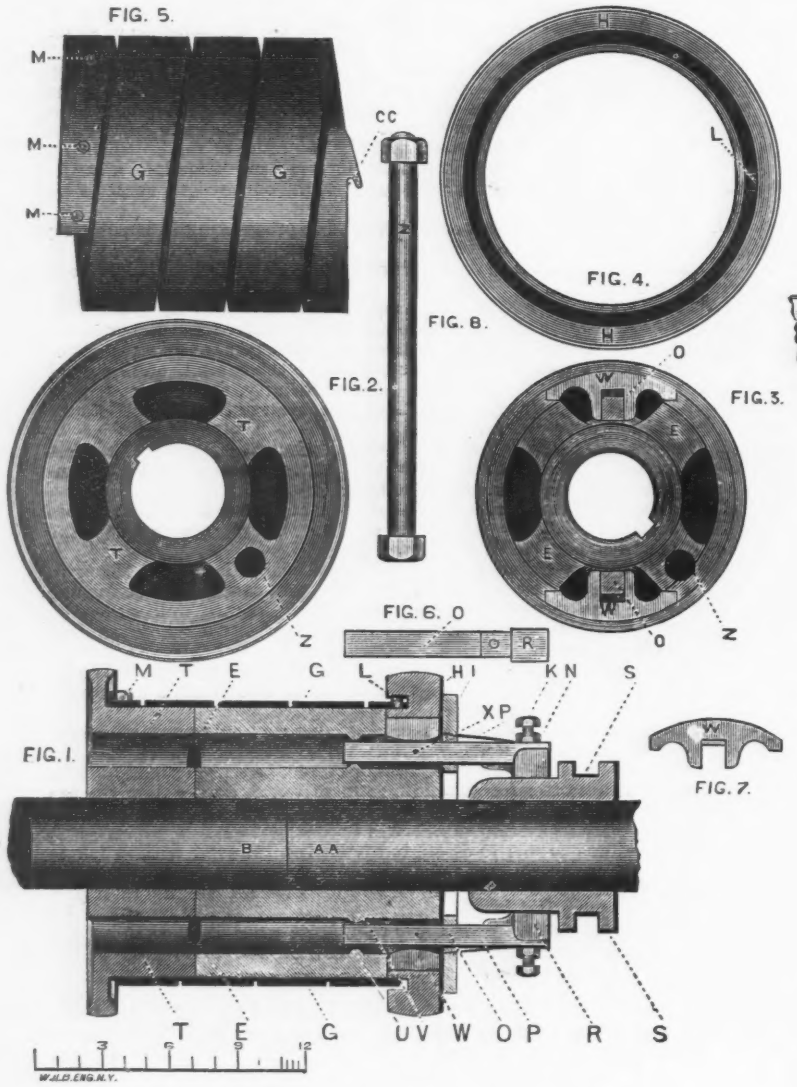
This ingenious and extremely simple clutch, shown in the accompanying illustrations, consists in attaching a friction ring to the end of a coil made of a wide band of iron or steel. On applying friction to this ring, by suitable means, the coil contracts or winds up on the drum, clasping it with a force depending on the friction and the number of turns of the coil, and thus there is hardly any limit to the multiplication of the applied power.

On removing the friction from the ring, the expansion of the coil is instantaneous, with no possibility of failure.

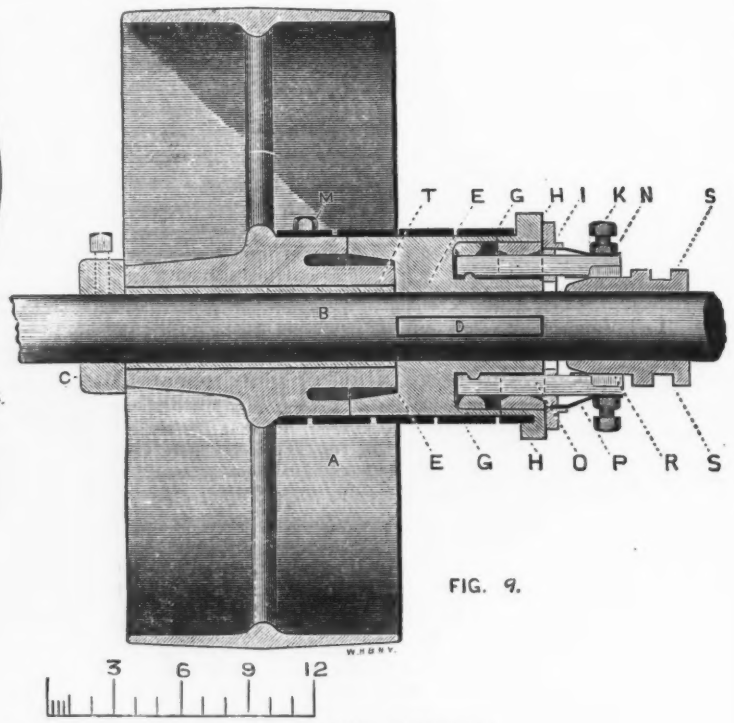
The wear in this clutch is almost entirely self adjusting, the coil simply winding up a little more as the wear progresses.

The illustrations show the details of a cut-off coupling which would be of use in many cases, and the friction applied to pulleys, also shown in section, would be extremely useful where fast and loose pulleys are now used, in fact, the mere illustration of this simple and easily handled clutch will at once suggest to the practical mill man many places where it will prove advantageous. The prices, too, at which the manufacturers, Messrs. Cranston & Co., of New York, furnish them, appear reasonable for good work. A 12-inch diameter by 6-inch face friction pulley is given in the price list $14; a 24-inch by 12-inch, $60; a 36-inch by 12-inch, $96, etc.

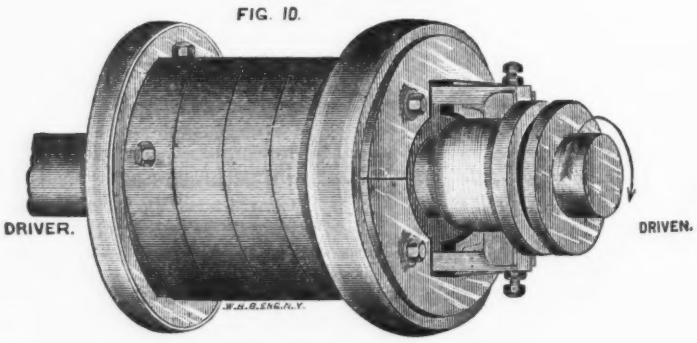
The clutch in all cases is guaranteed to be equal to the capacity of the belt.



PARTS OF CUT-OFF COUPLING.



FRICTION PULLEY.



CUT-OFF COUPLINGS.

Plants and the Electric Light.—Some very unlooked for and extremely disagreeable results, says the Berlin *Centralblatt der Bauverwaltung*, have followed the lighting up of the Winter Palace at St. Petersburg with electricity, the intense brilliancy of the light having been found to cause dire destruction among the ornamental plants used for the decoration of the banqueting halls. It appears that the complete illumination of the rooms for a single night is enough to cause the leaves to turn yellow and dry up, and ultimately to fall off. The damage to the celebrated collection of palms at the Palace is especially serious. It is supposed that the injury is principally due to the sudden change from the sunless days of the northern winter, and from the subdued light of the plant houses to the blinding light of the banqueting halls. It has been shown beyond a doubt that the rapidity of the injurious action, and its amount, are directly proportional to the intensity of the illumination, and plants standing in niches or other places partially shielded from the light are found to remain uninjured.

BATTLE MOUNTAIN MINING DISTRICT, EAGLE CO., COLORADO.

By E. E. Olcott, E.M.

Concluded from Page 418.

As will be seen from the geological section published last week, the carbonate ores occur between the compact limestone, and the soft or dolomitic limestone. In many places there are two ore-bodies, lying nearly parallel to each other, and more or less conformable with the strata; undulating, swelling and pinching, as is so often the case in such deposits.

The lower ore-body is highly ferruginous, and varies in thickness from a foot or two to thirty feet. The ore in general runs, say from 4 ounces to 25 ounces silver per ton, and from a trace to half an ounce in gold, and about 13 per cent of lead. The excess of iron over silica is sometimes as much as 20 per cent, which gives it an extra value at the smelting-works. These ores are similar to those of the Iron Silver mine of Leadville.

Between the lower and upper ore-body in the places where examined, there was 30 to 40 feet of barren limestone and oxide of iron. This latter body is not usually so thick as the lower, although in places it swells to the same maximum thickness of 30 feet; it usually contains more lead and a little less silver and gold; an average composition may be stated to be 12 ounces silver and 1-10 ounces gold per ton, and 34 per cent of lead. In places these upper ores resemble closely the sand carbonates, which were so abundant in the early days in Leadville.

The carbonate ores were worked before the discovery of the quartzite mines, and seem still to have a promising future. In the continuation of the carbonate ores in depth, there have been developed recently some sulphides which assay well, and give considerable promise.

ECONOMIC CONSIDERATIONS.

As can be seen, both from the section published last week and the view that appears herewith, taken from the London *Mining Journal*, the development of the ore lying in the slightly inclined quartzite and limestone strata is most easily made by inclines in the ore itself, and the heads of these inclines are consequently situated high above the Eagle River Valley. Through this valley passes the Denver & Rio Grande R. R, and it will not be long before the Colorado Midland will be running its trains there also. The ore being brought to the surface so far above the railroad tracks, can be cheaply delivered on the cars. This costs at some mines about 20c. per ton. There are some incline planes built on timber and some wire rope tramways used for this pur-

pose. At present, freight on ore to Leadville is $2 per ton, and to Denver or Pueblo $5 per ton, hence these ore markets are easily reached. It is believed also that the railroad will soon connect with Aspen, thus giving another outlet for the ore.

Only a little way down the Eagle River Valley, at Glendon, there is also good coal, which may justify the establishment of smelting works very near Battle Mountain. The prices realized for the ores vary with their composition, and are calculated on a sliding scale, usually ranging within the following limits:

Working charge, $3 to $12 per ton; lead, from 20 cents to 40 cents per unit, depending on the percentage of lead in the ore, for all over 5 per cent. Ninety-five per cent the assay value of silver; about $18 per ounce for all gold above $\frac{1}{10}$ ounce.

It would be impossible to give average values for the ores shipped from Gilman, for the variations are too great; while to give the shipments made by individual companies would be out of place in a general letter.

From results before me, I can give the following:

182 tons of ore from quartzite deposits gave a gross value per ton of $72.31

	Ounces, gold.	Ounces, silver.
1 car-load of quartzite ore gave	3·15	85·6
" " "	1·14	50·9
" " "	2·19	78·8
" " "	1·90	64·6
" " second class, gave	1·10	29·9

Mention was made last week of the very rich ore from the Ben Butler mine, assaying in hand samples $50,000 per ton; from this there are ores of every grade down to $10 per ton.

Timber is cheap and abundant, as well as wood for fuel. No difficulty is experienced in working these mines all winter. There was scarcely a day last winter when sleighs did not make connection with the railroad at Red Cliff, while on March 20th the road was opened for wagons.

The new town of Gilman is a thriving little camp, which is growing rapidly in true Western style; already a good school-house and large church are erected, to say nothing of the more common, though less salutary, concomitants of a new and booming mining town.

In conclusion, it may be remarked that there are a number of good mines at or near Gilman, which will pay well on a fair valuation, while there are many natural advantages of location and surroundings, which give hope that profitable and legitimate mining can be carried on for some time.

Errata—p. 418, first paragraph, for Occidental read Accidental.

Indian Railways.—A large section of the native press in India is loudly crying out against the extension of railway communication, alleging that all the benefits to be derived from them can only accrue to English capitalists. The *Bangabasi* says: "The English merchants wish the Government to extend railways on its own responsibility, and borrow money from British capitalists. Their desire would be satisfied if the Government would borrow forty crores of rupees. They have raised the question of the welfare of both England and India. They wish to prove that the natives of India will be benefited by the extension of railways, and that the English people will also be benefited by it. We have already shown that the English people only will be benefited. We wonder at the argument set forth with a view to betray the natives of India and the Indian Government. The extension of railways will increase the sale of English goods. There is no necessity for raising the question of the welfare of the natives of India. Our Government will not do any good to the natives, even if it has the desire to do so. It must undertake work which will do good to the English people. So the railways will be extended. It is idle to talk of the welfare of the natives of India."

MEXICAN NOTES.

By Geo. Schley, Mining and Civil Engineer.

In answer to your invitation to write something about Mexico and its mines, I may state that, during an eight year residence in that republic, I have traveled through all the mineral districts—from the State of Durango south to that of Oaxaca, and from Tepic, on the Pacific, to Vera Cruz, on the Atlantic coast—and I am convinced that Mexico presents, probably, the best field for investments that is now open. Its rich plantations, some of them producing 2 and 3 crops a year; its fertile valleys for raising cattle, with no winters to interfere and no blizzards to destroy the profits, should prove attractive.

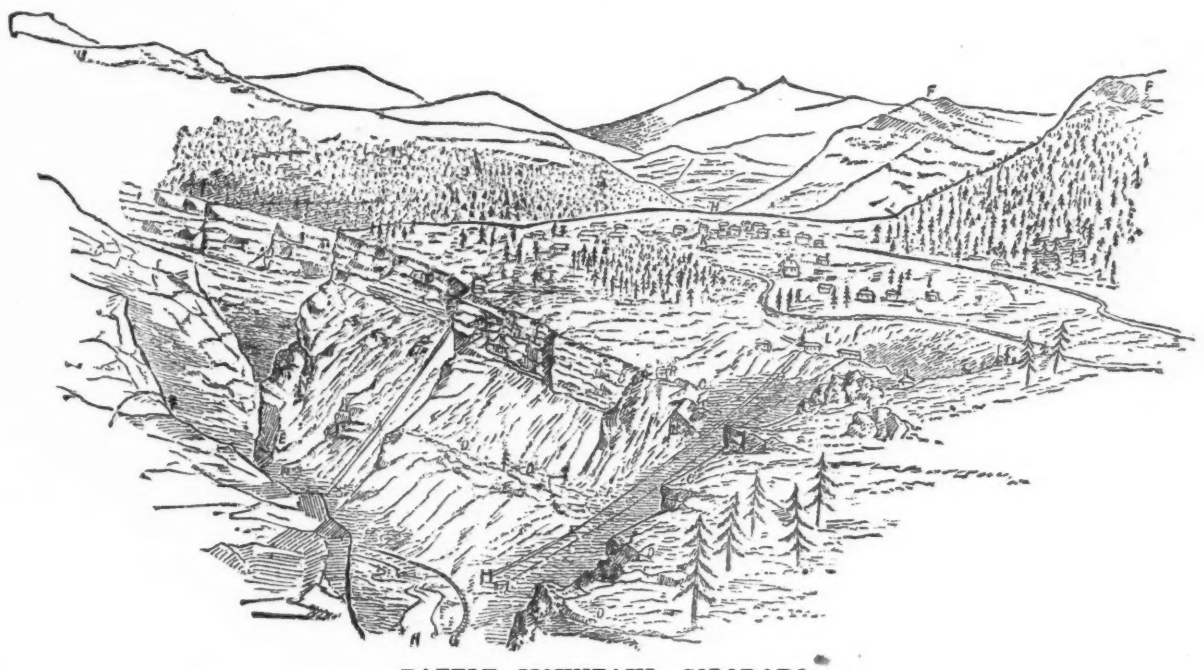
There is also an opening for cotton growers, for most of the cotton manufactured in Mexico is imported. Furniture manufacturers have a choice of all the most desirable woods which are now shipped to the United States to be seasoned and then reshipped to Mexico; to be manufactured with imported machinery.

There is a large demand for American furniture, and although that made at present in the city of Mexico by a German-American sells cheaper than the imported article, the prices are still exorbitant.

Rubber and bee ranches on the Atlantic coast pay well; the latter shipping wax to the city of Mexico to be used in candles, and honey to be exported to Europe.

Some excellent hydraulic limes, iron ores, coal and other minerals are found in quantity, and if taken hold of by the right parties with sufficient capital would bring excellent returns to the investors.

The manufacture of iron or steel nails, of ropes from the jute or henequin; ranches, especially fine horses, coffee, would also give fine returns.



BATTLE MOUNTAIN, COLORADO.

A, Limestone. B, Trachyte. C, Quartzite. D, Gneiss. E, Granite. M S, Christo Range. F. Sandstone. G, Denver & Rio Grande Railroad. H, Eagle River. K, Clinton City. L, Iron Mask Mine. R, Rocky Point Mine.

Old Mexico presents to the mining public a field for investments unequaled in the world: gold, silver, lead, copper, and manganese ores, the latter rich in gold and silver; iron, zinc, tin, antimony, arsenic, cobalt, and mercury.

In some of the best known mining districts, such as Real-del-Monte, Pachuca, Guanajuato, Zacatecas, Tasco, Zimapan, Catorce, Balaños, Sombrerete, Fresnillo, Sultepeque, Tlapujahua, Mineral-del-Oro, and Angangueo, the mines have been worked to some depth and produced immense quantities of silver and some gold. There are new mining districts now being opened up, some of them still unknown to the outside world.

If some enterprising capitalists would employ a thorough mining engineer and expert who is not afraid of hard work and roughing it, to travel through Mexico, they could pick up some magnificent properties at very reasonable prices, or on working terms, where the owners of the mine would give about three fourths of their property to capitalists for the working capital, under conditions guaranteeing all the security afforded by the Mexican mining laws.

These laws are now general over the entire republic, while originally each state had its own mining laws, which gave foreigners much trouble.

In glancing at a map of Mexico, it will be seen that the Cordilleras of that country are divided into two "Sierra Madres," one of the eastern, and the other of the western coast. Both begin in the State of Oajaca, and diverge from there; both carry minerals through their entire length. There is also a range of mountains which begins at Real-del-Monte and Pachuca, of Eastern Sierra Madre, and diverges to the northwest, taking in the mineral districts of Guanajuato, San Luis Potosi, Zacatecas, Durango, Batopilas, and Chihuahua, all of which are well known.

The richest gold states are undoubtedly Oajaca, Guerrero, and Michoacan. They compare in richness with our California, etc. Yet little is known of the whereabouts of the mines out of which gold is obtained, for they are known only to the Indians, who live in the mountains and

bring down gold dust, nuggets, and cakes weighing up to 4 and 6 ounces. Neither promise of money, nor fear of imprisonment or even death, can induce them to divulge the location of their mines. One of the wealthiest men in Oajaca to-day is a German, who has amassed a large fortune buying gold, 800 to 950 fine, at $8 to $15, Mexican money, per ounce.

There exists to-day a general idea that only such mines should be handled by large companies as show fine samples and big assays. Where these are found, it has been my experience that the veins are narrow or ore came in pockets. On the other hand, where large quantities of low-grade ores are found, the best results have been obtained. In Pachuca, State of Hidalgo, from whence millions worth of silver has been shipped, the average assay of all ores beneficiated, including the richest shipped to Europe or America, amounted to from $35 to $45 per ton, or eight marcs (64 ozs.) per monton of 3000 pounds.

I have visited several new districts now being developed, where, with the investment of some $8000 or $10,000 in prospecting, valuable properties can be opened up and large fortunes realized. Taking up abandoned, far-famed old mines has cost hundreds of thousands of dollars, and in the end they were found worthless.

One great mistake made by most Americans now engaged in mining in Mexico has been in starting in with insufficient capital. It has cost many of them their entire investments.

The patio amalgamation process is mostly used; smelting in some few districts, such as Angangueo, Los Arcos, Tasco and Zimapan, have some large furnaces, and some water-jacket furnaces. In other districts where smelting is customary, it is done in small Castilian furnaces, wherein only very rich ores can be smelted. Barrel amalgamation has been used with success at Velasco, near Real-del-Monte.

The Washoe pan, as far as I know, did not give very satisfactory results south of Durango, except, possibly, at Mineral-del-Oro, near Morelia.

June 1, 1887.

National Electric Association.—The National Electric Association will hold their next convention at the Parker House, Boston, Mass., August 9th. The National Association is composed of persons connected with all the most prominent electric lighting companies of the continent, and the meeting in Boston will bring together a large number of prominent electricians, including the presidents of many of the companies.

Production of Iron in Belgium.—The provisional return of the production of manufactured iron in this wonderful little "centre of industry," during 1886, gives a total of 470,022 tons as compared with the 469,249 tons produced the previous year. The output of rails and plates is stated at 112,700 tons, as against 103,087 tons in 1885. Of merchant iron, etc., the production in 1886 was 357,322 tons, whereas that of 1885 was 366,162 tons.

A New Unit of Time.—Mr. Lippmann has recently proposed to the *Academie des Sciences* the substitution of a new unit of time for the ordinary second, which he regards as an arbitrary and variable unit. The unit proposed would be an electrical resistance, which can be shown to represent an interval of time—the resistance, say, of a cube of mercury. M. Lippmann gives a method of practically determining the unit by means of an artificial resistance and condenser, apparatus which he considers likely to be more constant than the standard clock.

The Main Railway of Siberia.—The works on this great line of communication are reported to be progressing so rapidly that the section between Tekaterinenburg and Tjumen is now practically completed. The general opinion seems to be that the goods traffic from China and some of the Siberian governments will be sufficient to pay a large dividend on the enormous cost. In the Government of Tomsk, 655,000 cwt. to 983,000 cwt. of wheat a year have to be transported on difficult roads; the mines of the Altai Mountains and Western Siberia yield annually 9800 cwt. of iron, 10,000 cwt. to 12,000 cwt. of lead, 166,000 cwt. to 170,000 cwt. of copper, etc., and finally there are large coal mines, which on account of the forest supplies are hardly worked at all. The Siberian plain, which will be opened out by the new railway, contains no less than 150 salt lakes, with a yearly production of 17 million kilogrammes of salt. The principal market of Western Siberia is held at Ischim: during its week's duration the turnover reaches the large sum of eight million roubles. Both transport and production have hitherto been hampered by a number of difficulties, but the new Siberian railway line is expected to remove all these. Easier means of transport will naturally tend to develop the trade of the neighboring countries, China and Turkestan, and Siberia may prove an important buyer of machinery, etc., in which direction an enterprising Stockholm firm has recently secured several very fair orders.

Electricity and Magnetism.—Mr. E. C. Remington has communicated to the Physical Society of London a modification of Maxwell's method for measuring the co-efficient of self-induction. The method referred to is given in Maxwell's "Electricity and Magnetism," Section 778, Vol. II., and is called, "Comparison of the electro-static capacity of a condenser with the electro-magnetic capacity of a coil." The apparatus used consists of a Wheatstone's bridge having the coil in one, and the condenser as a shunt to the opposite arm. In order that no deflection may be produced either for steady or unsteady currents, a troublesome double adjustment of the resistances is necessary, and to obviate this the modification was devised. It consists in placing the condenser as a shunt to only part of the arm, and this part can be varied by sliding contacts without altering the whole resistance of the arm. An ordinary resistance balance for steady currents is first obtained, and the sliders are then adjusted until no deflection is produced on breaking the battery circuit. Under these circumstances, it is shown that $L = Kr^2\frac{D}{B}$, where K is the capacity of the condenser, r the resistance between the sliders, and D and B the resistances of the arms in which the coil and condenser are placed. The conditions of maximum sensibility are investigated, and also those under which a telephone may replace the galvonometer. In the latter, it is shown that the only possible solution is when $r = B$—*i. e.*, Maxwell's arrangement. The author believes his modification would be much more sensitive by adopting the "cumulative" method used by Professors Ayrton and Perry in their secohmmeter, and in his case neither the speed nor the "lead" need be known.

The Composition of Well Water.—An important contribution has been made to the study of well water by Mr. R. Warrington, F.R.S., in a paper which he has communicated to the Chemical Society of London. He gives the proportion of chlorine in the rain-water at Rothamsted as 2 per million; the proportion of total combined nitrogen about 0·7 per million. He further says: "Of 31 inches of rain, annually falling on a bare clay soil, 17 inches have evaporated and 14 inches percolated below 5 feet. Drainage chiefly occurs between October and February. The quantity of chlorine in the drainage from 5 feet of soil is the same as that in the rain, but the proportion is doubled in consequence of evaporation. The proportion of nitrogen as nitrates in the drainage water from 5 feet of bare clay soil has averaged 10·7 per million. The production of nitrates in the soil is chiefly during summer; the principal discharge of nitrates as drainage is in the autumn. When land is covered with vegetation evaporation is increased, and the winter drainage commences at a later period. Evaporation being increased, the chlorine in the drainage water may also be increased. The drainage from the Rothamsted unmanured wheat land contains 6 per million of chlorine; the drainage from the plot manured with farmyard manure, 7·3 per million. While vegetation is active no nitrates are found in the drainage water from the unmanured wheat; the nitrates reappear in autumn, after harvest. The average proportion of nitrogen as nitrates in the drainage from unmanured wheat is 3·4 per million; from wheat receiving farmyard manure, 5·8 per million."

Character of Quicksilver Deposits.—Prof. S. B. Cristie, of the University of California, whose admirable paper on the New Almaden quicksilver works appeared some time ago in this journal, in his testimony in a recent case in San Francisco says: Quicksilver deposits, as a general rule, are very different from those of the ores of other metals. Many other metals occur in well-defined fissure-veins, so that there is no difficulty in following the ore, and in many cases of calculating beforehand the amount of ore in sight; but with the exception of the deposit at the Old Almaden in Spain, and to some extent the deposit at the Idria in Austria, the quicksilver deposits, particularly those of California, are characterized by a great and persistent irregularity, so that it makes the mining of these ores much more difficult than that of other metals. New Almaden is a striking example of this irregularity. It has often occurred in the history of the mine that there was none or scarcely any ore in sight, and it has often looked as though the mine must of necessity be shut down, and it has only been by the most careful and painstaking prospecting or dead work that it has been possible to keep up the production of the mine. Very frequently large bodies of ore will almost completely run out, and there will be visible in the face of the works only a slight coloration in the vein matter, which indicates that there is any ore left in that particular place, and by following out this little spring of ore very carefully it may lead into a large deposit. As a result of this, the workings of the mine are necessarily very irregular, and it requires the greatest skill on the part of the engineer in charge of the works to keep up a regular and steady output of ore. Many times in the past history of the mine, the prospecting work has not been carried on on a sufficient scale, and this largely accounts for some of the irregularities of the production of the mine in former times. I have noticed a steady improvement in the carrying out of this prospecting work, which of itself is necessarily very expensive and requires the greatest judgment on the part of the person in charge of the work.

PATENTS GRANTED BY THE UNITED STATES PATENT-OFFICE.

The following is a list of the patents relating to mining, metallurgy, and kindred subjects, issued by the United States Patent-Office.

PATENTS GRANTED JUNE 14TH, 1887.

364,636. Water-Feeding Device for Boilers. Fred B. Eastman, Waterville, Assignor to Solomon W. Bates and Benjamin F. Wright, same place, and Wilbur F. Lunt, Portland, Me.
364,639. Galvanic Battery. Victor Francken, Liege, and Edouard Bender, Brussels, Belgium. Assignors to the Leclanché Battery Company, New York, N. Y.
364,640. Duplex Engine. Harvey F. Gaskill, Lockport, N. Y.
364,642. Rolls for Rolling Railway Ties. Francois X. Georget, St. Louis, Mo.
364,644. Gas Controlling Apparatus. Francis H. Hambleton, Baltimore, Md.
364,666. Pipe Coupling. John O'Leary, Bayonne, N. J.
364,686. Pipe-Joint. John J. Thomas, Pittsburg, Pa.
364,695. Valve-Operating Mechanism. George T. Wilson, Boston, Assignor of one half to Julian D'Este, Salem, Mass.
364,702. Rock Drilling Machine. Bror F. Bergh, New York, N. Y., Assignor, by mesne assignments, to the Standard Hand Rock Drill Company, same place.
364,708. Means for Controlling the Supply of Atomized Fuel. George W. Davison, Rochester, N. Y., Assignor to the Rochester Machine Tool Works, same place.
364,712. Grate for Furnaces, etc. Samuel Fiske, New York, N. Y.
364,745. Smoke Consuming Furnace. Hawley Adams, New York, N. Y.
364,761. Brace for Dredging Machines. Edward Huber, Henry M. Barnhardt, and George W. King, Marion, Ohio.
364,780. Dredging and Excavating Machine. Morrill A. Shepard, Lebanon, Ill.
364,804. Turbine Wheel. Ashley I. Cole, Toronto, Ontario, Canada.
364,826. Brick or Tile Machine. John I. Knapp, Joseph C. McKenzie, and William Humphrey, Adrian, Mich.
364,833. Stone Sawing Machine. James W. Maloy, Somerville, Mass.
364,834. Machine for Curve Sawing in Stone. James W. Maloy, Somerville, Mass.
364,839. Portable Steam Boiler. Joseph R. Mitchell and Frank X. Fischer, Oakland, Cal.
364,842. Valve. Thomas F. Morrin, Jersey City, N. J.
364,844. Ore Separator and Amalgamator. Levi Newcomb, Boston, Mass.
364,851. Fuel Feeder for Boiler Apparatus. George H. Patullo, Bay City, Mich., Assignor of one half to Michael Garland, same place.
364,854. Composition for the Manufacture of Bricks, etc. James P. Perkins, Pullman, Ill.
364,907. Brick Machine. Jonathan Creager, Cincinnati, Ohio.
364,947. Pipe-Joint for Gas Mains. Frank Moore, Pittsburg, Pa.
364,948. Sand-Molding Machine. Matthew R. Moore, Indianapolis, Ind.
364,952. Gate-Valve. James Old, Allegheny, Pa.
364,953. Apparatus for Promoting Combustion in Furnaces. William Oliphant, Jersey City, N. J., Assignor to the Oliphant Manufacturing Company, New York, N. Y.
364,979. Process of Reducing Zinc Ore. Edward Walsh, Jr., St. Louis, Mo.
364,992. Gas Regulator. James H. Curry, Wilkinsburg, Pa.
364,998. Regenerative Hot-Blast Stove. Benjamin Ford, Middlesbrough-on-Tees, County of York, and John Moncur, Distington, County of Cumberland, England.

RE-ISSUE.

10,844. Machine for Sawing Stone. Emanuel Foerster, New York, N. Y.

THE METALLURGY OF STEEL.

By Henry M. Howe.

Copy-right by the Scientific Publishing Company, 1887.

(*Continued from page* 423.)

Here and there a group shows much higher tensile strength than its neighbors, but these excesses are not referable to any simple principle, and they are probably due to other causes than variation in manganese. Fig. 7, which shows a curve derived from the tertiary groups by combining them by fives into quaternary groups and plotting the centers of gravity of the latter, indicates either that the effects of manganese on tensile strength are not constant, but sometimes positive sometimes negative, or that they are so insignificant as to be completely masked by trifling variations of other variables.

The indications as to the effects of manganese on ductility (as measured by elongation) are more conclusive: the elongation of each tertiary group so closely approximates the average of its primary group that, combining the tertiary groups by fives, the elongation of the quaternary groups thus produced in no case differs by as much as 0·5% from the elongation of their primary groups, suggesting that, if manganese does directly cause brittleness, it is balanced by its indirect effect of increasing ductility by promoting continuity.

D. DESHAYES from examination of the Terre-Noire steels concludes that, when the manganese is in the neighborhood of 0·5%, an increase of 0·1% of manganese raises the tensile strength about 1-3rd as much as 0·1% of carbon does, or say from 2560 to 2845 lbs. per sq. in.: that it raises the elastic limit slightly more than the tensile strength; that it diminishes the permanent elongation on rupture, but by only about 1-6th or 1-7th as much as carbon does, an increment of 0 1% manganese diminishing the elongation by hardly 0·5%.[a]

The effects which he attributes to manganese are so slight that they may easily be due to variations of other variables: and as I have neither his data nor his method of analyzing them I know not how much weight to attach to his conclusions. They on the whole harmonize with the results of our other evidence, in indicating that the net effects of manganese within moderate limits are comparatively unimportant as regards tensile strength, and insignificant as regards elongation.

E. I have known the rails of a western Bessemer mill to contains 2·1% manganese when the carbon was below ·30%: at another it frequently reaches 1·55% with ·35% carbon. Table 17 gives three cases in which the manganese varies from 1·85% with ·76% carbon to 2·08% with ·52% carbon, in rails.

F. An eminent but dogmatic authority states that manganese in tool steel must not exceed 0·2%: yet very good tool steel with ·5 [b] and even ·78% [c] manganese is recorded. I have a trustworthy analysis of Jessop's best saw steel with manganese 0·45, carbon 1·06, silicon ·19 and phosphorus ·024.

G. Steel castings of admirable quality are often highly manganiferous: *e. g.*, No. 40, table 9, with 1·10 manganese, ·45 carbon, and ·35 silicon, with 105,080 lbs. tensile strength and 17·5% elongation: the same table gives many others tough and strong castings with from ·94 to 1·05% manganese.

[a] Annales Des Mines, 1879, p. 549.
[b] Thurston, Materials of Engineering, II., p. 435.
[c] Engineering and Mining Journal, 1875, II., p. 383.

H. Excellent boiler plate steel which passes the rigorous government tests often has more than ·55 and occasionally as much as ·64% manganese.

I. Experienced makers of soft open-hearth steel report that the addition of a moderate amount of manganese, with simultaneous diminution of carbon, greatly increases the ductility of steel containing ·24% carbon, and nearly free from manganese.

RÉSUMÉ.—Let each reader reconcile these facts with the prevalent dread of manganese as best he may: his conclusions will not injure the facts: neither will mine, which are as follows. The statistical examinations A to D indicate that, on the average, the net effects of manganese on tensile strength and ductility are slight. G shows that if ·9 to 1·1% manganese ever seriously injures static ductility, there are many cases in which it does not. The fact that rails (E) with 1·55% manganese and ·35 carbon very often successfully pass the straightening press and that those with over 2% manganese and ·52% carbon occasionally do, indicates that, if manganese renders steel brittle under shock, this effect is either slight or exceptional or non-cumulative, while H indicates that it is slight. F indicates that, if say ·45% or less of manganese lessens the power of steel to hold a cutting edge, this effect is not constant: and the presence of ·45% manganese in the crucible saw steel of a maker whose product has and apparently deserves the very highest reputation. indicates that if it tends to produce this effect this tendency can be safely combated.

While the evidence is too fragmentary to warrant final conclusions, it certainly strongly suggests that the present dread of manganese is largely a superstition: that while 1 or 2% of manganese is probably liable to cause decided brittleness, its effects have been grossly exaggerated, and that Dudley's [d] conjecture that 5 parts of manganese cause as much brittleness as one part of phosphorus is very wide of the mark.

§ 86. MANGANESE STEEL.—While the small amounts of manganese in ordinary commercial steel increase its forgeableness and within certain limits its brittleness, yet when so much manganese is present that its effects outweigh those of carbon and that it forms a true manganese steel the alloy becomes extraordinarily tough and difficultly forgeable: it possesses a combination of hardness and toughness which should be of value for tools which cut by impact, and which is not otherwise attainable so far as I know, at least in any material available for the arts. Several attempts to utilize its remarkable properties have been made of late, and others are to be expected.

The extreme brittleness of tungsten steel often prevents us from availing ourselves of its intense hardness, which equals that of any steel within my knowledge: manganese, which gives such toughness and hardness, holds out promise as a means of remedying this defect, and indeed tungsten steel often contains from 1 to 2·5% of manganese. But as both tungsten and manganese steel are difficultly forgeable, this defect would probably still restrict its use.

The open-hearth cutlery steel of a western United States mill in two cases contained

Manganese.	Carbon.	Silicon.
1·25	·35	·09
1·00	·45	·09

But this can hardly be classed as a true manganese steel. N. Washburn, at Allston, Mass., is reported to have made railway car wheels of steel containing 7% manganese and 0·6% carbon, and to have suspended his manufacture solely for legal considerations.

[d] Trans. Am. Inst. Mining Engineers, 1879, VII., p. 197.

Far better known is Hadfield's [a] manganese steel, which contains from 7 to 30% manganese. The following specimens of his steel have been described:

I.[a] Manganese, 9.8; carbon, 0.72; silicon, 0·37; sulphur, 0·06; phosphorus, 0·08. Elongation in 8 inches, (1) 22%, (2) 28·9%: tensile strength, (1) 106,490, (2) 119,054 lbs. per sq. in.

II.[a] 9 to 10% manganese: can be machined, but with difficulty. With more manganese the steel can hardly be cut by carbon steel.

III.[b] 12·5% manganese. Hard-drawn wire, tensile strength 246,480 lbs. per sq. in. The same annealed 107,520 lbs., with 20%± elongation. Modulus of elasticity 23,890,000 lbs. per sq. in., or about 85% of that of carbon steel.

IV.[c] 17·5% manganese, 0·8% carbon. Hardly cut in a lathe by carbon steel. When quenched in water it could be bent double without cracking.

V.[a] 18% manganese. Could be forged, but with difficulty. I found a specimen of manganese steel readily forgeable between dull and light redness: at a yellow or very dull red heat it was tender, and below the latter temperature extremely so. Cold-forging raises its tensile strength but makes it brittle. Its toughness is restored by heating it. I find it slightly softer and it is said to be much tougher after sudden than after slow cooling.

Its electric conductivity is very low, 12% of that of iron (1·8% of that of copper?) according to Barrett.[d] It is but very slightly magnetic: Bottomley [d] found that, after being submitted to the most powerful magnetizing force, its permanent magnetism was but 0·02% of that of ordinary steel, while Barrett found that its induced magnetization in a uniform field was but 0·3% of that of iron: but for the high cost of manganese this property would commend this steel for the plating of iron vessels, which, if built of this wonderful material, would have little deviation of the compass.

It is stated by interested persons to be exceedingly fluid, to solidify with but little contraction, and without blowholes, and to be, even without forging, "harder, stronger, denser and tougher" than most forged steel.

Brustlein[e] states that it welds with great facility.

The fracture of manganese steel is shown on Plate I.

CHAPTER V.

IRON AND SULPHUR.

§ 90. SUMMARY.—Sulphur unites with iron probably in all proportions up to 53·3%, being readily absorbed from many sources. It may however be prevented from combining with iron and even expelled from it by many agents (*e. g.*, basic slags, carbon, silicon, manganese, oxygen, water, ferric oxide). Certain of these in the blast furnace prevent the sulphur present from combining with the cast-iron, and in the conversion of cast-iron into malleable iron, whether by puddling, by pig-washing or by the basic process much of the sulphur of the cast-iron is expelled. It causes cast-iron to retain its carbon in the combined state. Carbon and sulphur and perhaps also silicon and sulphur are mutually exclusive within limits. Sulphur makes malleable iron redshort and interferes with its welding, but these effects are largely effaced by the presence of manganese. It is thought to make malleable iron slightly tougher and softer when cold, but to make cast-iron harder, though this latter effect is at least in part due to its causing it to retain the carbon in the combined state. It increases the fusibility of cast-iron but makes it thick and sluggish when molten and gives rise to blowholes during its solidification.

§ 91. COMBINATION.—Sulphur unites readily with iron in many proportions (the sulphides Fe_8S, Fe_2S, FeS, Fe_2S_3, Fe_7S_8 and FeS_2 = Fe 46·7%, S 53·3% are recognized), being greedily absorbed by it, as the following paragraphs show, from sulphurous fuel and even from sulphurous gases, from the sulphates of baryta and lime, and probably from other sulphates. Ferrous sulphide (FeS with 36·36% sulphur) appears to dissolve in non-carburetted iron or to unite with it in the igneous way in all proportions: Percy,[f] melting ferrous sulphide and iron together in various proportions, obtained completely fused and apparently homogeneous products.

Willis states that in the open-hearth process 30% of the sulphur contained as sulphate of baryta in some ore that was added was absorbed by the steel.[g] Finkener found that when metallic iron and lime sulphate were exposed to a white heat *in vacuo* the mass was fused, an oxide and sulphide formed (whether any iron sulphide formed is not stated).[h] This indicates that, in the presence of an acid slag, *e. g.*, in the open-hearth process, metallic iron would take up sulphur from lime sulphate.

Odelstjerna and Forsberg[i] found that steel in the open-hearth furnace absorbed from 0·015 (0·15?) to 0·3% sulphur from the producer gas, as proved by repeated experiments, and crucially by desulphurizing this gas by adding in the gas-producers 7 parts of crushed lime to 100 of coal, when the absorption of sulphur by the steel ceased. Hardisty[j] states that he has often found ·01 to ·02% more sulphur in open-hearth steel than could be accounted for by the iron charged.

Finkener,[k] heating iron in an atmosphere of sulphurous acid found that the iron absorbed sulphur, and was in part simultaneously oxidized.

M. White informs me that repeated investigations at the Bethlehem Iron Works have shown more sulphur in the Bessemer ingots than is contained in the cast-iron when it runs into the convertor; this excess, amounting to say 0·008%, is probably absorbed by the steel from the sides of the ladles, which in turn probably absorb bisulphide of carbon from the producer gas with which they are heated.

§ 92. THE CONDITION OF SULPHUR IN IRON.—Several facts suggest that in solid iron sulphur, at least in part and under favorable conditions, exists not in simple uniform combination with the matrix of metal, but as a sulphide, probably of indefinite composition, dissolved or suspended in particles usually so minute as to escape detection. It tends strongly to segregate or even to liquate from cast-iron: it is often very irregularly distributed through sulphurous steel. Snelus, sifting the borings of cast-iron, found the finer and more graphitic portions unduly sulphurous.[l] When cast-iron is dissolved in hydrochloric acid "even after all the iron is dissolved and the solution boiled for some time, sulphuretted hydrogen is

[a] Weeks., Trans. Am. Inst. Mining Engineers, XIII., p. 233; also XV.
[b] The Electrician, Jan. 7, 1887.
[c] S. Wellman, private communication.
[d] The Electrician, loc. cit.
[e] Journal Iron and St. Inst., 1886, II., p. 775.
[f] Percy, Iron and Steel, p. 33.
[g] Journal Iron and St. Inst., 1880, I., p. 91.
[h] Wedding, Basische Bessemer oder Thomas Process, p. 155.
[i] Journal Iron and St. Inst., 1886, I., pp. 125, 337; Iron Age, April 8, 1886, p. 11.
[j] Journ. Iron and St. Inst., 1886, I., p. 128.
[k] Wedding, Der basische Bessemer- oder Thomas-process, p. 155.
[l] Journ. Iron and St. Inst., 1871, I., p. 40.

still given off"—especially in case of siliceous cast-iron.[a]

§ 93. REMOVAL OF SULPHUR.—Fortunately sulphur is readily removed from iron by many reagents, lime, magnesia, the alkalies (and their basic silicates), carbon, silicon and manganese, which all probably remove it as sulphide, since their sulphides, unlike that of iron, are but slightly soluble in the metal: ferric oxide, atmospheric oxygen, steam and alkaline nitrates, which oxidize and expel it as sulphurous and sulphuric acids: and heat alone, which decomposes sulphates of iron (*e. g.*, in roasting iron ores) volatilizing the sulphur as sulphuric acid. Further, manganese counteracts the effects of moderate amounts of sulphur retained by the iron.

A. CARBON removes sulphur from ferrous sulphide and apparently from cast-iron and steel, probably in both cases as bisulphide of carbon, CS_2, which forms when sulphur and carbon meet at a red heat. Very inflammable, it burns in the air to carbonic and sulphurous acids. Hochstätter[b] in Percy's laboratory, exposing sulphide of iron (which had about 29% sulphur and was therefore nearly ferrous sulphide) with charcoal in covered brasqued crucibles to a white heat, expelled 21·13% of the sulphur initially present, obtaining a sulphide with about 33 34% of sulphur and a small quantity of highly siliciferous metallic iron (iron 89·53, silicon 9·41). The expulsion of sulphur is attributable to the carbon present.

That sulphur is expelled from cast-iron by carbon is indicated by Smith's experiment in Percy's laboratory. Exposing white cast-iron to a steel-melting heat in a graphite crucible with an excess of charcoal, collecting and remelting the resulting buttons under charcoal, he found that the sulphur which was initially 0·78% had fallen to 0·34%, and the iron had become mottled. Similarly both Smith and Weston in Percy's laboratory melted gray cast-iron with ferrous sulphide in such small proportion that it was wholly either decomposed or absorbed by the cast-iron. A very considerable proportion of sulphur was in general expelled.[c] Their results are here summarized.

TABLE 22 A.—FUSION OF CAST-IRON WITH FERROUS SULPHIDE.

No.	Observer.	In the mixture of cast-iron and FeS before fusion. Carbon.	Sulphur.	In the fused product. Carbon. Combin'd	Graphite.	Total.	Sulphur.	Loss on fusion. Carbon.	Sulphur.	Grade of the product.
1	Weston.	3·84	4·38	...	....	3·17	2·12	·67	2 26	White, no graphite separated.
2		4·16	2·23	2·46	1 44	3 9	1·68	·26	0 55	" graphite separated.
3		4·31	1·24	....	....	3·6	1·31(?)	·71	....	" " "
4		4 39	0 70	....	....	....	0·72	....	....	Mottled " "
5	Smith.	....	2·68	....	....	....	·78	....	1·90	White " "
6		....	·78	....	....	..	·34	..	·44	Mottled.
7		....	·90	....	....	....	·09	....	·81	Graphite separated.
8		....	1·65	....	..	...	1·13	....	·52	White " "

1 to **4** inclusive. Non-sulphurous cast-iron, prepared by heating sheet iron in chemically pure charcoal, was melted with sulphide of iron containing 29·9% sulphur. **5**. Gray cast-iron melted under plate glass in clay crucible with the same sulphide. The crucible was perfectly closed, so that nothing can have fallen in: yet a considerable quantity of pulverulent graphitic matter was found between metal and slag. **6**. The white cast-iron produced in **5** remelted in a graphite crucible with a great excess of charcoal. **7**. Another variety of gray cast-iron was melted under plate glass in a clay crucible with the same sulphide. A considerable quantity of graphitic matter was found between metal and slag. **8**. Gray iron, about No. 2 in grade, was melted in a clay crucible under a plug of charcoal with the same sulphide: graphitic matter was found on the button.

So too Riley obtained graphitic cast-iron free from sulphur by fusion in a highly sulphurous gas-carbon crucible, the excess of carbon present apparently either preventing the absorption of sulphur from the crucible walls or actually expelling it when absorbed.[d]

In cementation (carburization of malleable iron by prolonged heating in contact with charcoal) the sulphur has been observed to fall from ·577 (?) to ·017:[e] from ·055 to ·019:[f] from ·04 to ·02, and, in case of white cast-iron heated for 35 days in charcoal from ·101 to ·036. Ledebur[g] thinks that bisulphide of carbon is probably evolved from solidifying sulphurous cast-iron.

In view of these facts Karsten's[h] statement that sulphide of iron with the minimum of sulphur remains unchanged when exposed to carbon for an hour at the strongest white heat, but takes up some carbon, is hard to explain. The experiments of Percy's laboratory are so conclusive that we must conclude either that Karsten was mistaken or that the special conditions of his experiments prevented the expulsion of sulphur.

B. MUTUAL EXCLUSIVENESS OF SULPHUR AND CARBON.—The experiments of Table 22 A not only show that carbon when present in excess, as in cementation and in fusion in carbonaceous crucibles, expels sulphur, and that, under favorable but little known conditions even the comparatively moderate quantity of carbon in gray cast-iron may so completely expel sulphur that, as in case 7, it falls from ·90 to ·09%, but also that, as noticed in § 20, sulphur in turn expels carbon, probably in part by dragging it off as bisulphide of carbon, partly by lowering the saturation point of the iron for carbon. Indeed, No. 7 indicates that even when so little as ·09 per cent of sulphur remains it may cause the graphitic separation from molten gray iron of part of the carbon which it had previously retained, or that it may at least prevent the reabsorption of the graphite expelled before the sulphur had fallen to so low a proportion. While part of the carbon thus expelled probably escapes as bisulphide, it is clear that the expulsion of a part is due to the effect of sulphur in lowering the saturation point of the iron for carbon: for not only is much more carbon expelled in every case than is needed to form bisulphide with the sulphur simultaneously eliminated, but in many cases a layer of graphite occurs on the surface of the resulting button of iron which itself is perfectly white; and moreover, as in No. 4 (and also No. 3?) a heavy loss of carbon may occur even when no sulphur is removed. The expelled carbon which in these experiments remains as graphite, because protected by a layer of glass, would doubtless be oxidized under ordinary conditions.

We safely attribute these effects to the presence of sulphur, for when, in an experiment parallel with No. 8, gray cast-iron was melted under glass in a clay crucible at an excessively high temperature and under the same conditions as prevailed in these experiments except that no sulphide was added, the fracture of the iron remained dark gray, and no indication of white iron arose.

In the experiments which we have been considering a little sulphur is added to an excess of iron: both sulphur and carbon are partly expelled but (if we exclude the trifling quantity of graphite formed) a single product with a moderate amount of carbon and sulphur arises. Under other and imperfectly defined conditions, *e. g.* when a large quantity of sulphide comes into contact with cast-iron at a high temperature, two products arise, sulphide of iron and metallic iron, which do not mix.

(TO BE CONTINUED.)

[a] E. Riley, Journ. Chem. Soc., 1872, XXV., p. 540.
[b] Percy, Iron and Steel, p. 34.
[c] Percy, Op. Cit., pp. 133 to 136.
[d] Journ. Iron and St. Inst., 1877, I, p. 162.
[e] Percy, Iron and Steel, p. 773.
[f] Ledebur, Handbuch der Eisenhüttenkunde, p. 954.
[g] Idem, p. 251.
[h] Percy, Op. Cit., p. 136: Karsten, Eisenhüttenkunde, I., p. 429.

PERSONALS.

The American Society of Civil Engineers will hold its annual reunion at the Hotel Kaaterskill, Catskill Mountains, on July 1st.

Mr. Henry C. Frick has resigned as manager of the Frick Coke Company, Pa., and Mr. Henry Phipps, Jr., of Carnegie, Phipps & Co., Braddock, Pa., has been chosen to take his place.

Mr. C. S. Osborne, to whose able editing of the *Miner and Manufacturer*, of Milwaukee, Wis., we have heretofore referred, has severed his connection with that paper.

Mr. Henry P. Clifford, who some years ago was connected with the floating of some Mexican mining companies and from whom nothing had been heard for a few years past, has bobbed up with a characteristic Col. Sellers Mexican scheme.

The Government of Costa Rica has made a contract with Senor A. Soto, under which the latter gentleman agrees to endeavor to establish companies in the United States and Europe for the purpose of opening up mines in the Republic, and extending agriculture and manufacturing industries.

Dr. Alexander Trippel, who has been connected with the Globe Copper Mines, Globe, Arizona, for the last three years, retires from the management. It has been decided to stop operations for the present, as already mentioned in previous issues of the ENGINEERING AND MINING JOURNAL.

Henry Cunningham, of Mineral County, has been appointed mine inspector for the first, and H. J. Tucker, of Fayette County, for the second of the two districts into which the State of West Virginia is divided. This is in accordance with a law passed at the last session of the Legislature providing for two mine inspectors.

FURNACE, MILL, AND FACTORY.

The Canada Chemical Manufacturing Company's works, at London, Ont., were burned on the 12th inst.

The Prospect Machine Company, of Cleveland, Ohio, has assigned, with $200,000 liabilities, and $500,000 assets.

A charter has been granted to the Chester County Corundum Company, of Philadelphia, Pa. Capital, $50,000.

The Sykes Iron Roofing Company, of Niles, Ohio, has ordered machinery for turning out corrugated iron roofing ten feet long.

Mr. William Thurstone, Secretary of the Merchants' Exchange, Buffalo, N. Y., has compiled an interesting article in *Bradstreet's*, of June 11th, in reference to the growth of Buffalo since 1880. This article has created quite a sensation in commercial and business circles.

The City Council, Eau Claire, Wis., has appropriated $10,000 to Messrs. Van Sickler & Company, Pittsburg, Pa., who propose to erect a blast-furnace there, as mentioned in our last issue. The provisions are that the company shall expend $125,000 on the works before the bonus is paid over.

The Sharon Steel Casting Company, Sharon, Pa., has erected a large open-hearth steel plant and the necessary machinery is now being placed in position. Messrs. Samuel McClure, F. H. Buhl, Daniel Egan, Joseph Riddle, J. Watkins are interested in this enterprise. The company will be prepared to make all kinds of steel castings, from 1 pound up to 15 tons.

The suspension of the Lochiel Iron Works, at Harrisburg, Pa., was only for a short time. The company was unable to compete with other mills, owing to the low price of iron, the inability to get satisfactory freight rates, and the fact that it was paying wages on a 2 1-10 cent basis, and it has now decided to continue operations on the Philadelphia basis.

The Crozier Iron and Steel Company, the works of which are at Roanoke, Va., has made an assignment for the benefit of its creditors. The preferred amount accounts $378,000, and the assignment was made, it is stated, for the adjustment of some legal difficulties, among which is a claim for $80,000. The principal owner is Samuel A. Crozier of the Chester Rolling Mills, Pennsylvania.

The Pittsburg Electro-Plating Company, Pittsburg, Pa., has been organized to work the patents of Mr. P. H. Laufman, relating to sheet steel, which is made of decarbonized steel, manufactured at the Apollo Sheet-Iron Mills. After being rolled to the proper thickness it is electroplated with copper on both sides and tinned on one side, and in this condition, it is contended by the manufacturers, it is a better article for many purposes than solid sheet copper.

CONTRACTING NOTES.

Contracts Open will be found on page xix. New Contracts this week: No. 392, Iron Pipe; No. 393, Rock Excavation; No. 394, Pumping Engines; No. 395, Iron Bridge; No. 396, Iron and Steel; No. 397, Water-Works; No. 398, Supplies, Cement, Stone, Bolts, Nails, etc.; No. 399, Boilers; No. 400, Machinery for Steam Snag Boat; No. 401, Water-Works; No. 402, Iron Floating Gate or Caissons; No. 403 Iron Beacon.

The contract for furnishing coal for the public buildings in Brookline, Mass., for a year, has been awarded to George M. Winslow & Co., of Boston. The prices to be paid are as follows: $5.62 for Furnace, $5.75 for Egg, $6 for Stove.

Messrs. Arnold & Stephens, who built the Haverstraw Tunnel of the West Shore Railroad, have been awarded the contract for stripping the Tilly Foster iron mine, Putnam County, N. Y., owned by the Lackawanna Iron and Coal Company, to which we referred in our issue of May 21st, and will begin work on the 21st.

The contract for part of the work of draining the Valley of Mexico is reported to have been awarded to the Bucyrus Construction Company, of Cleveland, Ohio. The government itself proposes to dig a tunnel under the mountain, on which work was begun as long ago as the reign of Maximilian. American engineers predict that as soon as the above company shows how effective its modern excavators are a still larger part of the drainage work will be intrusted to it.

The Pennsylvania Steel Co. has contracted with the Babcock & Wilcox Co. for the first boilers that will be used for two blast-furnaces at their new steel works at Sparrow Point, near Baltimore, Md., to which we referred in our last issue and in that of April 2d and 16th. The contract calls for 16 boilers of 240 horse-power each, to be finished by September 15th. When the first two blast-furnaces are completed others will be built, which will require more new boilers.

LABOR AND WAGES.

F. C. Frick & Company, one of the largest coke producers in the Connellsville region, Pa., have conceded the 12½ per cent advance demanded by the strikers, and work has been resumed at their ovens.

The management of the Reading Iron Works, at Reading, Pa., decided to postpone until July 1st the reduction of wages of 10 per cent. in the tube works, rolling mill and sheet mill, as announced in our issue of the 4th inst., to take effect on June 13th.

The first prosecution under the workings of the new mining law passed by the Legislature of 1885, which prohibits the employment of boys under twelve years old in coal-breakers, was instituted on the 14th inst. by Mine Inspector McDonal, of the Pittston District, Pa. The case upon which he bases action is that of Lewis Leppert, aged ten years, working as a slate-picker, who was caught in the screens and crushed to death.

The convention of the Amalgamated Association of Iron and Steel Workers completed the new scale at the session held at Pittsburg, Pa., on the 14th inst. It is understood to be a demand of the puddlers for a $5.50 rate for boding on a 2-cent card, and a corresponding advance of 10 per cent. in other departments, with the exception of the nailers', which, it is said, remains at 17 cents. Copies of the scale have been sent out to the manufacturers, and the conference on the wage question will begin next Tuesday afternoon.

At a meeting held at Pittsburg, Pa., on the 15th inst., of all the coke producers in the Connellsville region, except F. C. Frick Coke Company, in which Messrs. Carnegie, Phipps & Company are interested, it was unamiously resolved to reaffirm their position not to grant the advance demanded by the coke workers. The resolution refusing the demands of the workmen will prolong the strike indefinitely, and indicates a determination on the part of the operators to resist the strikers, nothwithstanding the action of the F. C. Frick Coke Company in granting the advance.

The strike of the ore handlers at Cleveland continues. About 400 are idle because one fourth of that number have not succeeded in forcing the New York, Pennsylvania & Ohio Railway Company to pay them 25 cents a day more than the other three fourths are satisfied to labor for. The strikers do not work, and they will not allow the others to earn a living. Messrs. McGuire and Berry, of the Knights of Labor General Executive Committee, arrived here last night to assume direction of the strike, and spent to-day making observations. The New York, Pennsylvania & Ohio Railway management, tired of fooling with the ore shovelers, has awarded to an outsider the contract for handling the ore on the docks. The strikers have little to hope for from this move, since in a card to the public, the contractor announces that he will pay the highest current wages, which is 25 cents less than the strikers demand.

GENERAL MINING NEWS.

Shipments of iron ore from the mines of the districts mentioned below for the season up to and including the 1st of June, as reported by the Marquette *Mining Journal*, were as follows:

	Tons. 1887.	Tons. 1886.
Marquette, Marquette District	132,045	169,733
St. Ignace, " "	18,685	13,8 3
Escanaba, " "	17 ,177	120,055
" Menominee District	208,168	191,768
Ashland, Gogebic District	142,600	96 080
Two Harbors, Minnesota Iron Company, Vermillion District	30,924	36,039
Total tons	712,599	627,468

ALASKA.

SITKA MINING AND COMMERCIAL COMPANY.—According to the San Francisco *Report*, the mining importance of Alaska has been greatly augmented by the bonanza discovery of this company on Unga Island, near the Alaska peninsula. Rock from the croppings of the Unga Island mines assays higher than the highest grade of ore from the profitable Treadwell mines on Douglass Island. It is stated that the Sitka Company has disposed of its northern extension of 1500 feet to the Unga Mining Company under the following conditions: The Unga corporation returns to the Sitka 75,000 of its 100,000 shares, with the understanding that this block of stock is to be locked up until the mine is developed, the other 25,000 shares being set apart for working capital. Of the 25,000 shares thus set aside, 10,000 shares will be sold (a large portion has already been taken) for $2 per share, and, if necessary, the other 15,000 shares will be sold at $3 per share. It is thought, however, that the mine can be developed for about $15,000, as that amount served to show the richness and permanence of the Sitka Mining and Commercial Company's property and paid for a five-stamp mill. The Unga Company also secures the water right of Wilkinson Creek, running from 200 to 1000 miner's inches. Unga Island is in the same latitude as the north of England, has little snow below an altitude of 1000 feet, and enjoys an excellent climate, the rigors of winter being mitigated by the Japanese current. The thermometer never gets more than 6 degrees below zero, and even bobs up serenely in a very few days.

ARIZONA.

COCHISE COUNTY.

COPPER QUEEN.—The smelters at Bisbee are now turning out on an average thirty-eight tons of copper per day. It is reported that Mr. Williams, the superintendent of the Copper Queen smelting-works, will buy his coke either in England, and ship via Cape Horn to Guaymas, or in Tennessee and ship to New Orleans and thence to Guaymas, and in bond to Arizona, owing to the effect of the Inter-State Commerce law on long and short haul. He also says he will ship his bullion to Nogales, and thence in bond through Mexico to England, to evade the Inter-State law, instead of as heretofore by New York.

PIMA COUNTY—QUIJOTOA DISTRICT.

The companies mentioned had cash on hand June 1st as follows:

Croker	$1,587 97	Peer	$8,991.36
Locomotive	4,000.00	Peerless	10,066.54

YAVAPAI COUNTY.

UNION MINING COMPANY.—The company has been quietly developing its property. They have a working shaft down nearly 400 feet, and are cross-cutting for the vein. They will continue to sink their main shaft, the object being to have a permanent water supply for fifty stamps. The ten-stamp mill will be enlarged in a short time.

ST. LOUIS & YAVAPAI MINING COMPANY.—Reports state the mine looks well, and the company have a good year's work ahead upon ore now in sight.

ARKANSAS.

GARLAND COUNTY.

ARKANSAS MINING AND SMELTING COMPANY.—This company has been incorporated, with a capital of $5,000,000; shares, $25 each. The property of this company embraces 13 claims located together, about seven miles north of Hot Springs. The ores are free-milling in character. The proportion of precious metals found are about two thirds gold and one third silver. Only a small portion of the stock, or a sufficient quantity to enable the company to purchase a first-class mining plant and prepare for its erection, will be sold. The officers of the company are: Geo. Miller, President; Dr. L. S. Thompson, Vice-President; Geo. W. Watson, Secretary; and J. P. Mercer, Treasurer.

CALIFORNIA.

AMADOR COUNTY.

CHICAGO.—This property, located south of Plymouth, is about to be started up. It has been idle for the last six weeks, on account of a number of attachment suits commenced, which are in a fair way of settlement. It is the intention to sink the shaft to a depth of 1000 feet and then open up levels while the shaft is progressing.

MCKENZIE.—The first clean-up of the Huntington roller quartz mill operating on this claim near Irishtown, six or seven miles east of Jackson, has been made. The mill was running seven days, crushing fifty tons per day. Every thing taken out was run through, not only quartz but dirt, and ledge matter on either side of the vein. The result was 6¾ pounds of retorted gold, estimated at $200 per pound. This would give $1350 as the result of the week's run, or an average of $4 per ton. The cost of mining, milling, etc., does not reach $1 per ton.

NORTH STAR MINING COMPANY.—The stock has been all placed and the first payment made thereon.

EL DORADO COUNTY.

EL MONTE.—This mine, situated near Kelsey, has recently changed ownership, and work of development begun. A contract will be let to sink the shaft 150 feet deeper at once. A mill has also been purchased, which will be in operation within three months.

MONTEZUMA AND LONE STAR.—These quarz mines at Nashville, on the mother lode, have recently been purchased by a New York company, and the development has been commenced under the superintending of G. W. Bibbens. They will immediately put up hoisting-works on both mines, and have already purchased a ten-stamp mill, which will be added to the ten stamps already on the Montezuma. They have been idle for a number of years.

MONO COUNTY—BODIE DISTRICT.

The companies mentioned had cash on hand June 1st, as follows:

Bodie	$38,858.11	Standard.....	$20,332.04
Bowler....	6,639.85	Syndicate	11,545.65
Mono...	24,880.23		

NEVADA COUNTY.

BRUNSWICK GOLD MINING COMPANY.—Official advices to us from the superintendent state that the improvements continue, and that the ore-body will justify the starting of the mill within the next five weeks, and will be continuous. The recent survey in the Idaho shows the dip of that vein to go into Brunswick ground.

CANADA.

PROVINCE OF QUEBEC.

The vein of gold discovered recently at Mattawa turns out to be very valuable, it being found to extend for a great distance and to become richer. The vein crosses beneath the Ottawa River and enters the mountains on the north side in Quebec province. Large exploring parties have started out to prospect the district for gold.

SACRAMENTO COUNTY.

ELDORADO WATER AND DEEP GRAVEL MINING COMPANY.—This company proposes to bring a canal into Sacramento County, thirty feet wide and six feet deep, capable of supplying 30,000 inches of water, which will irrigate every acre of land between the American and Consumnes River, a territory of 200,000 acres. The head of the canal will be at the mouth of Weber Creek, three miles above the Salmon Falls, on the south fork of the American River.

COLORADO.

FREMONT COUNTY.

ARKANSAS VALLEY OIL AND LAND COMPANY.—Natural gas has been utilized by the Arkansas Company for making steam and lighting up the premises at their wells, two and a half miles south of Florence, for more than a year past.

COLORADO OIL COMPANY.—The company's well No. 12, which struck oil a week ago, is pumping ninety barrels per day of very fine quality and the quantity is increasing. It is also producing considerable natural gas. Gas has been struck in every oil well at Florence. No. 8 well of this company was drilled largely by gas from No. 6, which has for eight months generated half the steam necessary to pump both wells night and day.

LAKE COUNTY.

DINERO.—The report presented at the annual meeting recently held shows that the mine is expected to ship about 200 tons in June, anticipated to average at least $40 to the ton net; the working expenses of the mine will be about $4000, leaving a profit of $4000. The gentlemen who are furnishing the concentrator are positive that will work to advantage; if it does nothing more, it will reduce the per cent of silica in the ore and thus decrease smelting charges. Surface water has entirely subsided and will not again interfere with the workings until another spring break up.

ST. KEVIN.—Additions have been made to the company's mill, which is now running to its fullest capacity.

HENRIETT AND MAID MINING COMPANY.—This company has been organized, with a capital stock of $1,000,000, divided into 150,000 shares at $10. The directors for the first year are H. A. W. Tabor, D. H. Moffat, J. J. B. Dubois, Eben Smith, and George W. Kassler, all of Denver. In our issue of the 4th inst., we referred to the consolidation of the Henriett and Maid of Erin mines.

IDEAL MINING COMPANY.—The report of Messrs Robinson and Hendlee, the experts sent to examine the mine, shows that the property was worth a little expense, and that to raise money sufficient to prosecute vigorous work was the first thing to be done.

ARAPAHOE COUNTY.

A meeting was held at the Chamber of Commerce at Denver on the 9th inst., for the purpose of organizing a company to bore for natural gas, with a capital stock of $25,000. As soon as $10,000 is subscribed the company will be incorporated and work commenced.

BOULDER COUNTY.

Several drill-holes for coal are being sunk near Louisville.

MARSHALL CONSOLIDATED COAL MINING COMPANY.—This company is examining its property near Louisville preparatory to development.

CUSTER COUNTY.

BASSICK.—The order for the sale of this mine by the sheriff on behalf of the contestants on both sides has been set for the 21st instant, for the interest of Mr. Hugh Butler's clients, and the other on the 22d in behalf of the clients of Messrs. Patterson & Thomas. The former is for amounts aggregating about $40,000 and the latter not far from $95,000. Both the Brown and Ryan party and the friends of Mr. Bassick claim the title.

EAGLE COUNTY.

BEN BUTLER.—The rich ore in this mine continues to hold out.

DENVER REDUCTION COMPANY.—This company has been organized with a capital of $500,000, for the purpose of mining, smelting, and reducing ore at different points, and especially at Gilman, Eagle County. The incorporators are Henry Cummins, G. W. N. Yost, Joseph Wittgenstein, Carlos C. Alden, of New York, and G. H. Thomson, of Denver.

IRON MASK.—It is stated that this mine is about to start up with a large force of men.

LA PLATA COUNTY.

NEW YORK & SAN JUAN MINING AND SMELTING COMPANY.—This company, whose works are at Durango, has but one furnace running, which is treating thirty tons of ore daily.

PITKIN COUNTY.

MUTUAL BENEFIT MINING COMPANY.—This company has been organized at Aspen with a capital of $1,000,000, shares $10 each. The president is Mr. Wm. B. Root; vice-president, Wm. Stone; treasurer, J. E. Freeman; secretary, A. E. Jones; manager, Phil Pratt. The company owns fourteen claims which are said to be all free from litigation of whatever nature. The property is situated in the Huntercreek and Woody mining districts, and is composed of the following claims: Ajax, Tripod, Black Metallic, Atlantic Cable, Blue Diamond, Court of Chancery, Don, Little Maggie, Bridal Chamber, Omega, Alpha, Nettie, Moscow, and Discovery. The contract has been uncovered upon five of these claims. The company's office is at Aspen.

PUEBLO COUNTY.

PUEBLO OIL COMPANY.—This company has been organized to bore for oil at Pueblo. Mr. K. Wildebon is President and J. E. Drake Secretary.

SAN JUAN COUNTY.

SAN JUAN CHIEF MINING COMPANY.—This company is pushing work in hopes of having its lixiviation works in running order early in July. They have leased the concentration works below Mineral, of the Lake Mountain Company, for two years. New Howell roasters are being put up. The machinery has been furnished by Messrs. Fraser & Chalmers, Chicago. C. W. Kempton, of the New York engineering firm of Kempton, Thatcher & Co., is on the ground and giving the work his personal supervision.

SAN MIGUEL COUNTY.

EL MUNDO MINING COMPANY.—The Wann concentrating mill (10 stamps) is about to be removed from Telluride to the mill-site of the El Mundo group of mines at Ophir. It was bought last March by the El Mundo Company, who will carry on extensive milling operations this season.

SUMMIT COUNTY.

ROBINSON CONSOLIDATED MINING COMPANY.—The production of the mine is curtailed about one-half, owing to water. Mineral is only taken from the dry portions of the mine.

ILLINOIS.

LOGAN COUNTY.

Natural gas has been struck at Lincoln at a depth of 400 feet, and a company organized to carry on further operations. Three hundred acres near the city have been secured.

INDIANA.

CLAY COUNTY.

NEW PITTSBURG COAL AND COKE COMPANY.—This company has been organized with a capital stock of $300,000. The officers are: President, C. E. Judson; General Manager, C. C. Harden; Superintendent, Geo. C. Richards; Directors, C. E. Judson, C. C. Harden, D. P. Addacks, and Geo. C. Richards, all of Chicago. They operate a vein of superior bituminous coal, as well as one of semi-block at Alum Cave, in the extreme southwestern part of Clay County. C. P. Harden recently sold the minerals underlying about 200 acres of land, mostly in Clay, but partly in Sullivan County, for $87,200, which is a very fair price. Machinery is largely used for mining. The output is sufficient to call for a train daily from the Evansville & Terre Haute road, the consignment being to Chicago. A number of coke-ovens have also been erected, and much of the bituminous coal will be coked at the mines.

KANSAS.

LYON COUNTY.

Coal has been discovered twelve miles northeast of Emporia. This brings coal ten miles nearer the city than heretofore.

KENTUCKY.

ELLIOT COUNTY.

NO DIAMONDS IN KENTUCKY.—The Geological Survey has published a bulletin upon the pereoditite of Elliot County, Ky. This is the formation which, owing to its identity with that of the Kimberly and other diamond mines of South Africa, and to the similarity of its surrounding geologic conditions, gave rise to the presumption that there might be diamonds in Kentucky. Mr. J. S. Diller, the author of the bulletin, makes but a brief allusion to this point. He says that no diamonds have been found in Kentucky, and that the shale in the immediate vicinity of the dikes does not appear to be sufficiently rich in carbonaceous matter to excite much enthusiasm.

MARYLAND.

ALLEGANY COUNTY.

FLINTSTONE LAND AND MINING COMPANY.—This company has been organized with a capital stock of $25,000, shares $10 each, for the purpose of developing the mineral resources of Allegany County, particularly of Flintstone district, where good specimens of iron, lead, silver, and marble have been found. The following officers have been elected: President, F. Laing, Jr.; Vice-President, C. G. Knieriem; Treasurer, D. W. Bussard; Secretary, James Ash; Superintendent of works, James S. Hopkins. The company expects to begin work this month.

MEXICO.

Official advices to us state the following:

AKRON MILL AND MINING COMPANY.—This company, of Parral, is planning to replace Cornish rolls with California stamps in their new mill for amalgamating silver ores by the Meech process.

CONCEPCION.—The thirty-stamp mill of this company, at Tlalpujuhua, in which St. Louis parties are interested, began operations on the 1st inst. The erection of the additional thirty stamps ordered from San Francisco will be proceeded with as rapidly as the rainy season now setting in will permit.

LA NORIA MINING COMPANY.—This company, of Zacatecas, is pushing the development of its mines during the erection of its new 20-stamp silver mill so as to have a large surplus on hand at starting up, and to insure a continuous running.

PARRAL MINING AND MILLING COMPANY.—This company, which is controlled by the estate of N. A. Cowdry, is about to put its Bosque mill in shape to treat the large accumulations of tailings, which show an assay value of over $200,000.

SANTA BARBARA MINING COMPANY.—This company has sold its silver-lead-zinc mines to a London company, who propose to work them on a large scale. The percentage of zinc is sufficiently large to pay all the expenses of treatment if saved.

SANTA EULALIA COMPANY.—This company, of Chihuahua, is planning a reorganization of its company so as to largely increase its present operations.

MICHIGAN.

COPPER MINES.

HURON.—No. 6 shaft, in the three lower levels, is reported to show the richest ground ever found in the mine.

QUINCY.—A fire destroyed the rock house and drum house at this mine last week. All of the rock from the mine had been selected and broken at the rock house preparatory to stamping, and was then placed in cars, which were lowered to the mill down an incline by means of a large drum and a wire rope. The loss is placed at about $30,000, but the most serious part of the matter is that it probably will take from two to three months to rebuild.

TAMARACK.—The new stamp-mill is working nicely. Its product for the first month will not show up very large. Some rich rock is now coming up from the bottom of No. 1 shaft. No. 2 shaft is sunk to a depth of 600 feet, and the sinking is progressing much faster than was expected. Some important improvements have been made for extinguishing fire about the shaft house, and the fire pump removed further away.

GOGEBIC DISTRICT.

CONSOLIDATED COLBY MINES.—The consolidation of the Penokee and Gogebic Development Company, with the Ashland Mining Company, under the name of the Consolidated Colby Mines, forms one of the strongest iron mining companies in this country. The Penokee and Gogebic Development Company own the Colby and Tilden mines, and own the fee of 8,000 acres of land on the Gogebic range, on which there are a number of productive mines located. The president of the consolidation is the Hon. Charles L. Colby. The purpose of the consolidation is to secure for the Wisconsin Central Railway the bulk of the Gogebic ore traffic. It is estimated that the Colby, Ashland, and Tilden mines will together ship 500,000 tons of ore this year. The incorporators of the consolidated company are C. L. Colby, E. H. Abbott, Frederick Abbott, and Howard Morris.

IRON MINES.

IRON DUKE.—A twenty-years' lease of this company's lands has just been secured by Messrs. C. R. Elv, James Ames, and Peter G. Lundquest, of Ishpeming. The lands embraced in this lease comprise the southwest quarter of section 2, being located within the city limits, and better known as the "Brass Wire" tract. The property is near the Cleveland & Hematite mines, and considerable exploring has been done upon it.

MISSOURI.

PETTES COUNTY.

Work has been in progress for some time, boring for natural gas, at Sedalia. A depth of 1000 feet has been reached, the drill then penetrating a stratum of gypsum. The formations that have been passed through are said to be the same as were penetrated at Geneva, N. Y., where a paying well was struck after having gone down 2000 feet.

MONTANA.

DEER LODGE COUNTY.

GRANITE MOUNTAIN.—Official advices to us state that the production for May was 293,785 ounces of fine silver, and 115,249 ounces of fine gold.

LEWIS & CLARKE COUNTY.

MONTANA COMPANY, LIMITED.—The production for May was $195,000.

SILVER BOW COUNTY.

ALICE GOLD AND SILVER MINING COMPANY.—Official advices to us state that the production for the first five months of 1887 amounted to 570 bars, which contained 915·24 fine ounces of gold and 324,467·95 fine ounces of silver—and which sold for $325,975.96. This is the actual amount of money realized from the sale of the same. The heavy decline in the price of silver makes the discount figure to nearly 28 per cent at the present time.

LEXINGTON.—Official advices to us state that the production for May was $13,500 in gold, $79,050 in silver; total, $92,550.

NEVADA.

ELKO COUNTY.

BELLE ISLE.—The company had $9875.31 cash on

hand June 1st. Line cross-cut, 150-foot level, has been advanced a total distance of 157 feet. The formation is more favorable for ore.

COMMONWEALTH.—Ground has been broken for a new compartment shaft, and work commenced in the northwest gangway of the Nevada Queen, which has reached the south end line. This will be extended to the shaft just started, and connection made at the depth of 200 feet. The present face of gangway is looking favorable.

DIANA.—The machinery is being put in good repair, and work will shortly be resumed on the lower levels Arrangements have been made to prospect the west side of the mine, by extending cross-cuts east from the 150-foot level of North Belle Isle. The stock is to be listed in San Francisco.

GRAND PRIZE.—The company had an indebtedness on June 1st of $32,106.50.

INDEPENDENCE.—The company had $22,080.08 cash on hand June 1st.

NAVAJO.—Good progress has been made with the work at all points in the mine. The company had $22,080.08 cash on hand June 1st.

NEVADA QUEEN.—Northwest drift, 200-feet level, has been advanced 27 feet, and has reached south end line of Commonwealth mine. Formation is stratified with seams of high grade ore. The company had an indebtedness, June 1st, of $17,154.55.

NORTH BELLE ISLE.—Work has commenced on the foundation for the new hoisting plant.

ESMERALDA COUNTY.

HOLMES MINING COMPANY.—This company had an indebtedness June 1st of $5115.10.

EUREKA COUNTY.

EUREKA CONSOLIDATED MINING COMPANY.—The company had $40,000.90 cash on hand June 1st.

LINCOLN COUNTY.

PIOCHE CONSOLIDATED MINING COMPANY.—It is stated that the property has been put on a basis for starting up, and that work for the purpose of getting to the bottom of the old Raymond & Ely shaft will be commenced immediately. Mr. Davis has assumed control of the company's mining operations.

STOREY COUNTY—COMSTOCK LODE.

We take the following from the Virginia City *Chronicle:*

The financial balances of the various mining companies on June 1st were as follows:

CASH ON HAND.

Alpha Con	$11,478.67	Imperial	3,412.49
Alta	60,784.38	Kentuck	1,464.96
*Andes	9,892.00	Lady Washington	19,471.32
Belcher	2,858.68	Mexican	6,608.94
Best & Belcher	3,725.75	Ophir	5,512.77
Benton Con	22,457.35	Occidental	4,544.57
Bullion	16,204.39	Orleans	1,037.30
‡Chollar	50,358.60	Overman	23,112.45
†Con. Cal. & Va.	223,308.48	Sierra Nevada	17,575.30
Challenge	2,243.56	Union Con.	
Crown Point	21,413.06	Utah Con.	11,776.25
Exchequer	8,475.91		
Gould & Curry	9,624.50		

* Operating expenses for May paid.

† Cash in bank and unsold bullion on hand of the assay value of $223,698.64. The final shipment representing the clean-up for the month of May was shipped June 6th, valued by assay at $92,000. The operating expenses, less the wages of employés, are about $120,000. The total sum of cash on hand, after deducting that amount, will be $103,308.48. Gold value of unsold bullion on hand June 1st, with final shipment for May added, $252,776. Total amount of coin value on hand about $356,084, after paying all operating expenses to June 1st.

‡ Cash in hands of superintendent, less $1,182.13 overdraft on Nevada Bank at San Francisco.

INDEBTEDNESS.

The following companies report having an indebtedness June 1st, 1887:

Hale & Norcross...$8,429.13 | Potosi $844.30

BALTIMORE.—A large quantity of ore has been extracted from the stopes above the 350 level. The mill at the mine will shortly be started.

BEST & BELCHER.—The most important new work inaugurated is starting a north drift from the west drift on the 1300 level, 60 feet west of the shaft station. The extension of this drift to the north line will demonstrate if the southern extension of the ore development made on the 1400 level in Con. Cal. & Va. reaches into Best & Belcher ground.

CONSOLIDATED CALIFORNIA & VIRGINIA.—The injection of carbonic acid gas into the bulkhead portion of the mine is steadily continued.

During the week ended the 4th inst., 962 tons of ore were shipped to the Morgan mill, 1458 tons to the Eureka mill. The average assay value of all the ore worked at both the above mills during this period, according to battery samples, was $31.21.

HALE AND NORCROSS.—From the south drift on the 1130 level, a streak of ore running west of south is being followed. Assays of car samples show it contains an average value of $40 per ton.

LADY WASHINGTON.—A vein of ore above the milling grade, carrying a small percentage of base metal, is alleged to have been developed in this mine in cross-cutting on the 700 level. Explorations are in progress to ascertain if its southern extension reaches into Benton grounds.

NORTH CAROLINA.

MECKLENBURG COUNTY.

DUNN.—This gold mine, which is situated nine miles west of Charlotte, is to be reopened and regular work resumed this summer. A mining engineer from France has quite recently examined the property for a foreign organization, and has reported favorably.

STANLY COUNTY.

STANLY FREEHOLD GOLD MINES, LIMITED.—This company has been organized in London with a capital stock of £90,000, shares £1 each, to purchase and work the Freehold gold mines, known as the Biles, Parker, Flint Spring, and Johnny Parker mines, near Salisbury. The property has been worked for some years past by tributers, or small local companies of miners. The entire surface consists of decomposed gold-bearing rock or alluvial gold gravel, containing both fine and coarse gold, yielding from a few grains up to 7 oz. and 10 ozs. of gold per cubic yard. The work of developing this property on a greatly extended scale will, it is estimated, cost less than £15,000. These mines have been specially examined by the following engineers, viz.: George Crampton, Esq., M.E.; Dr. R. M. Eames, Messrs. James Brothers (report on the Biles mine only), Eugene O. Bostwick, Wm. Nance, M.E., and M. S. Parker.

STOKES COUNTY.

The Dan River coal field, as it is called, was explored in 1885 by Dr. H. M. Chance, and with very discouraging results from his standpoint. The good people of Stokes County, however, disagree with Dr. Chance, says a correspondent of the Baltimore *Manufacturers' Record*, and they have raised a considerable fund to be expended in the examination of the entire coal-bearing area, sinking shafts and driving levels, and probably some deep boring with diamond drills.

SURRY COUNTY.

The hands at work on the Cape Fear and Yadkin Valley Railroad, in Surry County, are reported to have uncovered a workable bed of coal. This county adjoins Stokes County on the west, and the discovery of gold has stimulated exploration in that county. This is an entirely new field and is beyond the limits of the mesozoic formation in North Carolina as outlined by the late Professor Kerr.

WAKE COUNTY.

The plumbago or graphite mines in Wake County, have attracted the attention of some St. Louis capitalists, who are now negotiating for the purchase of part of this immense deposit. The best of this material is of good quality and may be used in the manufacture of pencils, crayons, etc., while the majority of it is useful in many ways; in foundries for mold facings, stove polish, crucibles, furnace linings, etc.

OHIO.

MAHONING COUNTY.

It is stated that C. H. Andrews, the pioneer coal operator of the Mahoning Valley, has located a large basin of fine block coal eight miles southwest of Youngstown, and will proceed at once to open it. The drillings show an average vein of five feet in thickness.

OREGON.

MINNESOTA, JACKSON COUNTY.

MINNESOTA MASSABA LAND AND IRON COMPANY.—This company has been organized at Lansing, Mich., to develop iron lands, its officers being J. M. Longyear, of Marquette, president; C. C. Bloomfield, of Jackson, vice-president; and A. B. Robinson, of Jackson, secretary and treasurer. The company owns 26,000 acres of iron lands. It will have its main office at Jackson, with a branch office at Minneapolis.

MULTNOMAH COUNTY.

PORTLAND REDUCTION COMPANY.—The company has increased the capital from $50,000 to $300,000. This was done with a view to the immediate erection, on a large scale, of works at Portland, in addition to the plant as already constructed. A forty-ton smelter is almost completed already at the plant in East Portland, and it is proposed to add another forty-ton smelter, thus increasing the capacity to a total of eighty tons a day.

PENNSYLVANIA.

COAL.

HOSTETTER COKE COMPANY.—This company, which recently purchased 3500 acres of coal lands near Mt. Pleasant, as mentioned in our issue of May 28th, will apply for a charter on July 2d. The capital stock is $1,200,000, of which $200,000 will be expended this summer in developing the property. As soon as the company secures its charter, work will be begun sinking a coal shaft and building coke-ovens. It is the present intention to build 1000 ovens on the plant, 400 of which will be completed this year and the balance within 18 months. The capacity of the plant, when completed, will be 2000 tons of coke per day. The property is on the southwest branch of the Pennsylvania Railroad, and the company has 100 acres of surface land on the railroad near Mt. Pleasant, where the first ovens will be built. Neither Hostetter nor Bagaley is a member of the company. It takes its name from that of the tract of land which was purchased.

OIL.

Exports of refined, crude, and naphtha from the following ports, from January 1st to June 11th:

	1887. Gallons.	1886. Gallons.
From Boston	1,973,730	2,308,129
Philadelphia	64,830,004	58,256,389
Baltimore	3,018,106	5,111,161
Perth Amboy	7,597,782	1,593,770
New York	155,484,598	169,300,303
Total exports	232,899,220	236,569,752

NATURAL GAS.

PHILADELPHIA NATURAL GAS COMPANY.—This company has already issued nearly all the additional $2,000,000 new stock in taking in Pennsylvania Natural Gas Company. It is said to be negotiating with the Chartiers Valley Company, which it may also lease. The People's Philadelphia Company has about $1,000,000 floating debt, which it is likely will be liquidated from proceeds of new stock.

The Chief of the Bureau of Statistics reports the total values of the exports of mineral oils from the United States for the month of May, 1887, and during the eleven months ended May 31st, 1887, as compared with similar exports during the corresponding periods of the preceding year, as follows: May, 1887, $3,987,348; May, 1886, $3,828,311; eleven months ended May, 1887, $41,199,455; eleven months ended May, 1886, $44,910,213. These exports comprise about 99 per cent. of the total exports in mineral oils.

TEXAS.

NUNNELLY GOLD AND SILVER MINING COMPANY.—This company has been organized, with a capital stock of $500,000. The principal office will be at Dallas. The officers are: G. C. Nunnelly, President; R. V. Tompkins, Vice-President; T. C. O'Connor, Treasurer; and R. P. Aunspaugh, Secretary.

UTAH.

SALT LAKE COUNTY.

DRY CANYON ROCK AND LIME COMPANY.—This company has been organized, with a capital stock of $500,000, shares $25 each, by Arthur L. Thomas, Caleb W. West, W. H. Bancroft, W. H. Hall, Daniel Letham, Joseph B. Walden, Henry Page. The company holds the following property with appurtenences, privileges and franchises: The Barker lime rock lode, the lithograph stone lode, the Emporium lime rock lode, the Eagle lime rock lode, and the Lime Rock lode, in the Hot Springs Mining District.

SUMMIT COUNTY.

DALY.—The production for May was 57,847.84 fine ounces of silver, and $33,824.03 from ore sales.

ONTARIO SILVER MINING COMPANY.—The mill will soon be closed down for a thorough overhauling and repairing. It has made a steady and successful run the past year. When closed down two new brick furnaces will be built. The production for May was 92,807.52 ounces of silver, and $85,649.99 from ore sales.

WEBER COUNTY.

UTAH SALT COMPANY.—This company has been organized, with a capital stock of $40,000, shares $10 each, to transact business incident to the manufacture and sale of salt of all kinds. The principal place of business and general office of the corporation shall be at Ogden City, Weber County.

VIRGINIA.

A correspondent writes us that operations have begun at the long deserted coal property at Carbon Hill. A company has been organized with a capital stock of $300,000 and $150,000 bonds. The property is eighteen miles from Richmond, and before the war it was worked by slave labor quite extensively, and it is said that there are 100,000 tons of culm in various heaps on the property. This is now being shipped. Meantime a standard gauge railroad track has been laid to a connection with the Richmond & Alleghany, six miles away, and a traffic arrangement made with that road. Ware B. Gay, of Gay & Parker, president of the new company, states that there are four veins of coal on the property. One vein is semi-anthracite, free-burning white ash, and the other three are coking bituminous, said to be good steam coal.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, June 17th.

Statistics.

Production of Coke on line of Pennsylvania RR. for week ended June 11th, and year from January 1st. Tons of 2000 pounds.

	1887. Week.	1887. Year.	1886. Week.	1886. Year.
Tyrone & Clearfield	...	1,735	.....	.....
Alleghany Region	3,956	109,741	3,421	92,443
West Penn. RR	2,404	51,472	1,715	45,978
Southwest Penn. RR	2,194	1,179,928	59,596	1,066,780
Penn. & W. Region	1,948	128,917	6,642	144,417
Monongahela	564	59,086	2,981	51,005
Pittsburg Region	.....	.....	.....	.....
Snow-Shoe	711	22,810	.....	9,345
Total	11,386	1,554,289	74,355	1,409,968

Production Anthracite Coal for week ended June 11th, and year from January 1st:

TONS OF 2240 LBS.	1887. Week.	1887. Year.	1886. Week.	1886. Year.
P. & Read. RR. Co.	178,917	3,365,160	281,062	4,531,215
Cent. R. R. of N. J.	112,374	2,124,948	*	*
L. V. RR. Co.	151,113	3,126,784	142,734	2,622,865
D., L. & W. RR. Co.	101,763	2,272,390	102,488	2,205,971
D. & H. Canal Co.	63,356	1,648,405	75,304	1,581,586
Penna. RR.	81,219	1,336,554	49,230	1,376,990
Penna. Coal Co	24,927	602,442	29,750	528,860
Penna. Canal Co.	14,703	92,222	13,728	120,072
Total	708,372	14,568,905	694,386	12,967,559
Increase	13,986	1,601,346	.....	.....
Decrease	.....	.....	.....	.....

* Included in tonnage of Philadelphia & Reading RR.

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.

Production for corresponding period:

1882	10,593,301	1884	11,702,121
1883	12,102,090	1885	11,241,465

Production Bituminous Coal for week ended June 11th, and year from January 1st:
Tons of 2000 pounds, unless otherwise designated.

EASTERN AND NORTHERN SHIPMENTS.

	1887. Week.	1887. Year.	1886. Week.	1886. Year.
Phila. & Erie RR...	230	3,388	... ...	7,464
*Cumberland, Md..	70,667	1,224,224	68,376	596,548
Barclay, Pa.....	3,645	97,632	1,933	92,567
*Broad Top, Pa.				
H. & Broad Top RR.	†4,500	164,203	4,691	168,408
East Broad Top....	.....	.....	.....	... .
Clearfield Region, Pa.				
Snow Shoe.....	2,304	77,002	354	35.885
Karthaus (Keating)	1,634	82,116	1,944	52,355
Tyrone & Clearfield	79,233	1,445,440	54,276	758,854
Tipton.....	699	3,276	.. ...	.....
Alleghany Region, Pa.				
Gallitzin & Mountain.....	14,063	495,498	9,220	377,501
Pocahontas Flat Top Coal.				
Norf'k & West. RR.	27,432	521 363	8,867	349,066
Kanawha Region, W. Va.				
Ches. & Ohio RR..	‡25,252	621,201	‡23,820	506,787
Total..... ...	229,659	4.735,344	173,481	2,945,433

* Tons of 2240 lbs. †Estimated. ‡Week ending May 31st.

WESTERN SHIPMENTS.

Pittsburg Region, Pa.				
West Penn RR.....	5,269	142,069	7.578	146.251
SouthwestPenn.RR.	1,443	63,990	1,117	89,404
Pennsylvania RR...	2,531	99,510	5,770	106,345
Westmoreland Region, Pa.				
Pennsylvania RR...	28,691	664,915	14,707	391,992
Monongahela Region, Pa.				
Pennsylvania RR...	10,291	168.743	11,384	157,249
Total.....	†48,225	1,139,227	40,556	891,241
Grand total.... ...	277,884	5,874,571	214,037	3,836,674

Anthracite.

This market has a decidedly better tone. There was a meeting of the general sales agents yesterday in this city, and every thing went off as smoothly and pleasantly as a marriage feast. Every one was convinced that the market is in excellent condition, and that it will take 2,500,000 tons in July and probably 34,000,000 tons this year, while the first half year will supply only 16,000,000 tons; so that the last half will have a very active and profitable business.

There has in fact been more demand for coal during the past week than for some time past, and it is generally thought that dealers and consumers who have been holding off with the expectation of a break in prices have at last given up that hope, and are preparing to buy. As yet, it is true, the improvement is in inquiries rather than sales, but the firmness of the sales agents has inspired the outside shippers to stiffen their prices, so that very little coal is now to be had below the regular net quotations, which, for ordinary free burning coals, per ton, f.o.b. vessels, are as follows:

Lump.....	$3.40
Steamboat.....	3.40
Broken.....	3.40
Egg.....	3.60
Stove.....	4.00
Chestnut.....	3.85
Pea	3 00
Buckwheat	2.15
Dust.....	1.75

Mr. John H. Jones, official accountant, has compiled the following statement of the anthracite coal tonnage for the month of May, 1887, compared with the same period last year. This statement includes the entire production of anthracite coal, excepting that consumed by employés, and for steam and heating purposes about the mines:

COMPANIES.	May, 1887.	May, 1886.	Difference.
Phila. & Reading RR...	547 507	560,582	Dec. 13,074
Central RR. of N. J....	396,156	335,253	Inc. 60.902
Lehigh Valley RR.....	541,061	459.852	Inc. 81.208
Del., Lack. & West. RR.	441,686	332,117	Inc. 109 569
Del. & Hud. Canal Co..	266,401	216.458	Inc. 49,942
Pennsylvania RR	313,511	225,272	Inc. 88,239
Pennsylvania Coal Co.	127,158	96,780	Inc. 30,378
N. Y., L. E. & W. RR...	66,868	27,322	Inc. 39,546
Total	2,700,353	2,253,639	Inc. 446,714

COMPANIES.	For year 1887.	For year. 1886.	Difference.
Phila & Reading RR...	2,758,285	2,266,619	Inc. 491,665
Central RR. of N. J....	1,925.077	1,795,170	Inc. 129,907
Lehigh Valley RR.....	2,657.397	2,347,758	Inc. 309,638
Del., Lack. &West. RR.	2,098,594	2,049,391	Inc. 49,202
Del. & Hud. Canal Co.	1,498 719	1,416,219	Inc. 82,499
Pennsylvania RR	1,370,969	1,301.646	Inc. 69,322
Pennsylvania Coal Co..	557,621	466,991	Inc. 90,630
N. Y., L. E. & W. RR..	326,075	287,259	Inc. 38,815
Total.....	13,192.738	11,931,057	I. 1,261,680

The stock of coal on hand at tide-water shipping points, May 31st, 1887, was 754,205 tons; on April 30th, 1887, 700,199 tons; increase, 54,006 tons.

These figures show that the stocks at tide water are still large. June 1st they amounted to 754,205 tons, which was an increase in May of about 54,000 tons. The output in May exceeded the estimated amount, but thus far this month it has kept within the figures counted on as necessary.

Next month and August will probably see a considerable demand for coal, which it is hoped will absorb the surplus on hand, and prices in August and possibly before the end of July will no doubt be advanced. Consumers will do well to be guided by this "point."

Bituminous.

The prices given in the circular published by us last week, and republished below, are the official rates and are well maintained by the coal companies. Some claim to be getting even higher prices. There is some coal outside the pool that is sold at from 10 to 20 cents a ton below pool prices.

"In accordance with the action of the Governing Committee, the Commissioner desires hereby to state to the members that the following is a correct list of the prices now in force for the guidance of the members in making sales, viz.:

"F.o.b. at Philadelphia, Norfolk, Newport News, Baltimore, and Georgetown, $2.60 per ton of 2240 pounds.

"F.o.b. at South Amboy, Perth Amboy, and Weehawken, for shipments to points on the Hudson River north of 57th street, and to points on the East River east of Hell Gate, $3.15 per ton of 2240 pounds.

"F. o. b. at Elizabethport and Port Johnson for shipments to points on the Hudson River, north of Fifty-seventh street, and to points on the East River east of Hell Gate, $3.05 per ton of 2240 pounds.

"F.o.b. at South Amboy, Perth Amboy, Elizabethport, Port Johnson and Weehawken for shipments to points on the North River south of Fifty-seventh street and to points on the East River west of Hell Gate, $3 25 per ton of 2240 pounds.

"Delivered alongside in New York harbor, south of Fifty-seventh street, North River, and on the East River, west of Hell Gate, $3.50 per ton of 2240 pounds."

The collapse of the coke combination through the action of Mr. Andrew Carnegie has demoralized the coke trade in the West.

Mr. Carnegie's action in conceding to the strikers what the Arbitration Committee had refused is the subject of much comment, and promises to be the forerunner of a vast amount of trouble. If the Workmen can disregard the decision of arbitrators, and gain their end, there can be no further object in arbitrating. The furnaces will now be supplied, and that will assure that the manufactories will not be stopped. It will, therefore, somewhat increase consumption of coal, but the strike would have collapsed within a week or two in any event.

Boston. June 16.

[From our Special Correspondent.]

There is a quiet market yet for all kinds of anthracite coal. The market holds up well, however, and looks quite as healthy as at any time recently. F.o.b. quotations continue to be cut here and there, but the amount of coal so offering is small, and does not seem to depress the general market.

The leading item of importance in bituminous coal this week is the City of Boston contract for Mystic Water-Works. Although the amount called for was but 2600 tons, it drew out a bid of $3.89 delivered on cars. The three rejected bids were $3.92, $4.15 and $4.20. This would indicate some cutting, as the delivered price, based on $2.60 f.o.b., would not fall below $3.95@$4. Bituminous can be had in small amounts on a basis of $3.75@$4 delivered, but no large contract would be taken at cut rates, it is believed. This is why the pool holds its own.

Within a few days the first arrivals of Nova Scotia culm have made their appearance in this market. Nothing is coming from the Bay of Fundy, but there is something doing at Cape Breton. Not much will come along this year, however, and this trade has ceased to be a competitive factor A few tanners at Salem, Peabody and Lynn like the coal to mix with tan bark, and the demand is confined almost exclusively to them. Probably the shipments to this country will not amount to 10,000 tons this year all told. The price of provincial culm will range from $2.60@$2.75 delivered this season, against $2.15@$2.35 last year. The advance is accounted for chiefly because of the advance in domestic bituminous, and partly because the Canadians are getting into the way of selling run-of-mine coal to a greater extent than formerly, and are also using more culm themselves. There was no profit in shipping culm coal to this market last year, but it is expected that a slight one will be realized on the current figures.

Speaking of Canadian coal trade, I notice that the new Canadian tariff removes the duty entirely on anthracite coal. This is done to compensate the people of the Dominion in part for the imposition of greatly increased duties on iron. We sold Canada about 650,000 tons of anthracite in the calendar year of 1886, according to the bureau of statistics, nearly all of our exported anthracite going there. Whether the abolition of the duty will lead to increased exports I will not pretend to say, but it would look that way.

There is an unevenness to freights, particularly for large vessels. There is a movement afoot to make the rates at Baltimore, Hampton Roads, and Philadelphia the same.

We quote, exclusive of discharging: New York, 80@85c.; Philadelphia, $1.05; Baltimore, $1.10@$1.15; Newport News and Norfolk, $1@$1.10.

Pocket dealers have put up prices 15 cents on free-burning broken and 20 cents on hard. Egg has been advanced 10 cents for free-burning and 20 cents for hard, while stove and chestnut are unchanged. We quote pocket prices as newly made:

	Broken.	Egg.	Stove.	Nut.	Pea.
Hard white ash. ..	$5 00	$5 00	$5.25	$4 90	$3.80
Free-burning do...	4.75	4.90	5.25	4.90	3.80
Lykens Valley.....	5.25	5.90	6.25	....	....

There is a little more doing in a retail way.

We quote delivered prices as follows: White Ash Stove, $5.75@$6.25; Egg, $5.50@$6; Broken, $5.25@$5.75; Lorberry, $7; Franklin, $7.50.

Wharf prices are as follows: Broken, $4@$4.25; Egg, $4.50@$4.75; Stove, $4.75@$5.

Buffalo. June 16.

[From our Special Correspondent.]

A grain of mustard seed produces a large plant and much seed after its kind. If a small item could be sown, watered and kindly tended to produce like results this letter would be quite lengthy.

The stubborn fact is that at the time of this writing there is really nothing new to record relative to the anthracite and bituminous coal trade in regard to prices, demand or situation. Lake freights closed last week with shippers and carriers apart in their views, and the result was that many vessels left for Lake Superior ports light. On Monday, there was more activity, as prices settled down. Yesterday and to-day business fair, with firm and upward feeling; coal plenty, but vessels scarce. The quotations for the week ending to-day were $1 to Chicago and Milwaukee, $1@$1.10 to Sheboygan, $1 10 to Racine, $1.15 to Evanston, 75c. to Duluth, Washburn, and Superior; 30c. to Sandusky, Toledo, Windsor, and Detroit; 35c. to Bay City, 80c. to Lake Linden, and 75c. to Port Arthur.

The shipments of coal by lake from June 9th to 15th, both days inclusive, 50 980 net tons, namely: 18,220 to Chicago, 5580 to Milwaukee, 3720 to Duluth, 9280 to Superior, 2500 to Toledo, 600 to Saginaw, 680 to Sandusky, 1900 to Washburn, 1400 to Port Arthur, 1270 to Detroit, 1560 to Sheboygan, 3080 to Racine, 300 to Kincardine, 820 to Lake Linden. Total for the season thus far, 461,100 net tons.

Receipts of coal by canal for week ending June 14th, 2380 net tons; shipments, 771 net tons.

The only charters by canal were three loads coal dust to Syracuse at 60c. gross ton, free on and off. The nominal rate to New York $1.75, and to Albany $1 25 gross ton, free on and off.

Pittsburg. June 16.

[From our Special Correspondent.]

Coal.—The boats that left for Cincinnati and Louisville carried 7,850,000 bushels. It was the most successful run ever made. Not a bushel of coal was lost. The boats are now on the way home with empties to be reloaded for the next rise. Monongahela, first pool, per 100 bushels afloat at mines, $4.50; second pool, $4.25; third pool, $3.65; fourth pool, $3. railroad coal, $4.75@$5 per 100 bushels.

Coke.—No sales and no coke to sell. This, from present indications, will be the situation for sometime.

FREIGHTS.

The latest actual charters to June 17th, per ton of 2240 pounds:

To	From Philadelphia.	From Baltimore.	From New York shipping ports.
Bangor.....	.....	1.15	...
Bath, Me.....	1.05*	1.15	.80*
Beverly	.....	.....	.80*
Boston, Mass.....	1 00@1.05*	1.15	.80*
Bridgeport, Conn...	... ..	1.00	.55
Cambridgeport.....	.....	.....	.80*3c.
Charleston, S. C.. ...	.70	.75@ 80	.....
Chelsea.....	.....	.....	.80*
Com. Pt., Mass.....	.....	... ...	.80*
E. Boston..	.....	1.15	.80*
E. Cambridge . ..	... ..	.....	.80*
Fall River.....	.....	1.00	.75
Galveston..... ..	.....	3.50@3.75	.....
Gardner...	.....	1 15	.. ...
Georgetown, D. C .	.85	... ..	.....
Lynn...	1 25*	. ..	.. ...
Marblehead	1.05*	.....	.....
Milton	.....	.....	.....
Newark.....	.....	1.10@1.15	... ...
New Bedford	. ...	1.00	.80*
Newberne.....	.70	.....	.....
Newburyport	.....	1.30	.95*
New Haven.....	.....	1.00	.55
New London.....	...	1.00	.70
Newport	.90*	.....	.75
New York.....	.90*§	1.00	.....
Norfolk, Va.....	.50	.....	.. ..
Norwich.....	. ..	.....	.75
Norwalk.....	.....	.....	.55
Portland, Me.....	.95*	1.15	.....
Portsmouth, N.H...	.....	1.25	.90*
Providence, R. I....	.....	1.00	.75
Quincy Point.....	. ..	1.15	... ..
Richmond, Va.....	.65	.....	.....
Saco.....	1.10*	.. ..	.....
Salem, Mass.....	1.05*	1.15	.80*
Savannah...	.....	.75	. ....
Somerset	.....	1.00	.....
Williamsb'g, N.Y...	.....	1.00	.....

* And discharging. † And discharging and towing. 3c. per bridge extra. § Alongside. ‖ And towing up and down. ¶ And towing. †† Pilotage. ** Below bridge. *** Old B. L.

MARKETS.

NEW YORK, Friday Evening, June 17.

Prices of Silver per ounce troy.

Jun.	Sterling exchange	Lond'n Pence.	N. Y. Cents	Jun.	Sterling exchange	Lord'n Pence.	N. Y. Cents
11	4.86	43¾	95⅛	15	4.85	44	95⅜
13	4.86	43⅞	95⅜	16	4.85	44	95⅜
14	4.86	43⅞	95⅜	17	4.85	*	95¼

* 43 15-16.

Foreign Bank Statements.—The governors of the Bank of England, at their weekly meeting, made no change in the rate of discount, and it remains at 2 per cent. During the week, the bank gained

£391,000 bullion, and the proportion of reserve to its liabilities was raised from 47·04 to 48·01 per cent, against 39⅛ per cent at the same time last year. The weekly statement of the Bank of France shows gains of 2,525,000 francs gold and 800,000 francs silver.

Storage Room for Silver Dollars.—The count of the cash in the United States Treasury, which is now in progress, has developed the fact that the vault capacity is entirely inadequate for the safe handling of the silver. The silver vault was filled to its utmost capacity some time ago, and there still remained about 8,000,000 standard dollars, which, for want of a better place, were piled in bags in the passageway leading to the vault. In making the count these bags had to be removed to an outside hall, where they now remain protected from outside interference by nothing but a pine board partition. They, therefore, have to be guarded at all times by watchmen, who are armed with revolvers during the day and with repeating rifles during the night. The count will last five weeks more, and the silver can not be returned to the vault room until that is concluded. In the meantime, work is being pushed on the new silver vault authorized by the last Congress. It will have storage capacity for 100,000,000 standard dollars, and will probably be ready for use in September.

Copper.—There is a better feeling in this market than we have found for some time past, and as a prominent broker expresses it, "if any one were interested in putting the price up it could easily be done." Some 300,000 pounds of Lake spot copper was sold at the Metal Exchange last Saturday at 9·95, but none can be obtained now below 10 cents, and 10⅛ has been bid for cash Calumet & Hecla without finding sellers. For September 10·20c. is paid, and for October 10·25c.

The stocks of copper are very light, and the old stock of casting brands which was accumulated last summer and has been going out in driblets since then is nearly exhausted.

Casting brands are held more firmly also, 9¼c. being about the bottom quotation.

Our exports continue quite active, as is seen from the following report for the week :

		Lbs.		
To Havre:				
By S. S. La Normandie—Casks..	252	427,022		$38,256
" " Bars...	297			
To Hamburg:				
By S. S. Polynesia—Pigs			56,420	5,600
To Liverpool:—Matte.				
By S. S. Adriatic—Bags..		2,815	328,839	15,000
" Spain—Bags.		3,146	378,150	18 908
" City of Chester—Bags...		2,134	258,850	12,945

Perhaps the foundation for the better feeling in the copper market, aside from the knowledge of our own strong statistical position here at home, was the better tone of the London market. Chili Bars have advanced to £39 10s. Best Selected stands at £44 10s., and the sales on the London Metal Exchange have aggregated during the week 2500 tons. Private cables from London report a decrease in visible supply during the fortnight of 3000 tons. There is evidently a better feeling there, for speculation appears to have commenced, and prices are improved

The Boleo fire is confirmed, but the mine had but about 1750 tons of black copper on hand, so that the product was of little moment anyway. The Quincy is running its mill day shift (half time) with improvised crushing plant. It will require two months to rebuild the rock house, etc.

James Lewis & Sons, report under date Liverpool, June 1st, 1887 :

Chili Bars have fluctuated between £39 1s. 3d. and £39 7s. 6d. per ton for sharp cash during the past month, according as sellers or purchasers predominated. The higher figure was touched on the 5th, and the lower on the 24th ult., the closing value being £39 5s.

The effect of a diminution of 2139 tons in the stocks, made up in the middle of the month, was neutralized by the announcement of a probable increase in the production of the Rio Tinto mines next year of 3500 tons, and eventually of 8500 tons fine copper, the total last year having been about 23,500 tons.

During the last few days, under the influence of newspaper articles favorable to the future of this metal, values improved 5s., but half of this was lost yesterday.

One thousand eight hundred and sixty-five tons of Anaconda matte have arrived here during the past month, and 170 tons have been shipped from New York to Germany. Five hundred tons of ingots made from this matte at Baltimore are being shipped to France. Six hundred tons in stock here, and 1650 tons to arrive (since arrived) were sold on the 6th ult. to the Associated Smelters at the low price of 7s. 9d. per unit, and 80 tons on the 29th at 8s. per unit.

It is stated that works for the smelting and refining of copper from Anaconda matte are about to be erected and to be ready to produce 20 tons of refined copper daily by the 1st of October, and a larger quantity subsequently, at a cost of £300,000, at Duluth, on Lake Superior.

We are advised that about 1750 tons of copper in the form of bars and matte are awaiting shipment at the Boleo mines in lower California, but that the present production is only at the rate of about 75 tons of fine copper per month, four of the furnaces having been burnt out and consequently not available.

There are rumors of large discoveries of copper in Alaska.

The arrivals from Chili during the month have been 1368 and the deliveries 2610 tons fine, and from other countries 4469 and 5130 tons fine respectively.

The arrivals here from the United States have been 368 tons bars, 30 ingots, 2288 matte, and 70 ore, equal to about 1851 tons fine copper, and in France 250 tons.

The Chili charters for the month are 3300 tons, and the closing rate of exchange is 24⅝d. Bars are quoted $16 per quintal.

Tin.—The tin market was very quiet until Tuesday when 100 tons were sold at 22·70c. On Wednesday, 105 tons were sold on the Metal Exchange, at 22¾ @22·85c., and 180 tons were sold yesterday, mostly at 22¾ for July, 22·60 for September. To-day the market is again quiet; total sales, 895 tons. Prices have ruled steady, and we quote to-day 22·60c for September, and 22·75c. for spot. Imports of tin into the United States during the first 10 months of the fiscal year were 11,630 tons, as against 10,972 in 1886.

Lead.—This market is quieter, but quite firm. Manufacturers are already commencing to make inquiries, and some are buying. The sales during the week have aggregated over 300 tons sold, mostly to manufacturers. Prices are held firmly at 4·67½@4 70c. for spot and June lead, and 4·65@4·67½c. for July.

Foreign, 4·77½c. on dock, and 4·80c. in store.

There is a rumor that the Kansas City Works have offered September lead at 4·65c.

The present outlook for lead is that it will be kept up to the importing price probably for the balance of the year. London cables to the Metal Exchange quote soft Spanish £12 10s., which is an advance from last week of 5s.

Manufactures.—Sheet lead is quoted at 7¾c. Pipe at 7c., less the usual discount of 20 per cent. Bar lead is 5¼c. Shot, 1·40c., being all as heretofore quoted.

White lead is held at 6¼@6¾c. gross for Eastern brands, and about 10 cents less for Western, with the usual discounts.

Messrs. Everett & Post, of Chicago, telegraph today as follows : The market remains about the same, if any thing a shade weaker, though spot lead is very scarce. Sales will not aggregate 300 tons, at 4·55c., July principally.

Spelter.—This market is again a little firmer. Domestic is quoted for common brands $4 52½@$4.55. Silesian is quoted $4.85 here, and £14 12s. 6d. in London. The market here has a rising tendency.

Sheet Zinc is in demand, and quoted 6½@6¾c.

Zinc Oxide is quoted 4@4½c., according to quality, for Domestic. French zincs are quoted 5½c. for Dry Antwerp Red Seal, and 7½c. for Dry Paris Green Seal, with the usual discounts.

Antimony.—This market is higher. We quote Hallett's at 8@8¼c. and Cookson's 9c. Hallett's is quoted to-day in London at £33 10s., which is an advance of 20s. during the week.

Quicksilver.—The market remains unchanged. We quote $42 per flask, and 52½@53c. per pound; in London, £6 15s.@£6 17s. 6d. per flask.

Nickel.—We quote 65@70c. per pound.

Aluminium—Is quoted at $1@$1.25 an ounce.

IRON MARKET REVIEW.

NEW YORK. Friday Evening, June 17.

There is very little change to note in the iron business, which continues in practically the same condition as for many weeks past. The outlook for continued business remains excellent. Furnaces and mills are actively employed in filling their orders.

American pig-iron is unchanged, with very little new business and prices firm.

Scotch irons appear to be in a little more demand, with prices firmer here and in Scotland. An additional amount of 1200 tons has been sold here, and it is reported that considerable purchases have been made in Scotland for this market.

Bessemer pig is lifeless at present, although there will, doubtless, be a demand later for this article. Whether American furnaces can fill this demand or their proportion of it will depend on the time of the final adjustment of the coke strikes. These strikes were in fair process of adjustment, but the matter has been seriously complicated by the concession of the coke-workers' demands by the Carnegie interests, as detailed by our Pittsburg correspondent.

There is a little more activity in steel billets and nail slabs, and quotations are lower than last reported. Previous quotations were purely nominal. Now that business seems to be in sight, they are put on a business basis.

The steel rail mills have already taken orders for about 1,700,000 tons, which is a very near approach to their actual capacity for the year. There are also many orders on the market. Sales of foreign rails for the week, for the West and Northwest, aggregate 25,000 tons. We expect to hear of many more sales of foreign rails, as our domestic mills will be taxed to their utmost, especially in view of the curtailment of production occasioned by the coke strikes.

The makers of structural iron are full of work, and their prospects for continued business are excellent.

In old rails there are some signs of more orders in the market, although there are very few transactions to report. The large amounts going into store show that there will be very little, if any, concession made by strong holders, who are firm in their belief that higher prices will rule as soon as there is any business of moment.

The following quotations are of the ruling prices :

American Pig-Iron.—No. 1 X, $20.50@$21 ; No. 2 X, $19.50@$20; Forge, $18@$18.50.

Scotch Pig.—Coltness, $22 @$22.25; Clyde and Dalmellington, $20@$20.50; Summerlee, $21.25@$21.75.

Cables to the Metal Exchange to-day quote Warrants, 42s. 5d. ; Coltness, 54s.; Langloan, 50s. 6d. ; Summerlee, 52s. 6d. ; Gartsherrie, 48s.; Glengarnock, 46s. 9d.; Dalmellington, 43s. 6d.; Eglinton, 43s.

Bessemer Pig.—Foreign, $19.75@$20 ; Domestic, $19.25@$20 at furnace.

Spiegeleisen.—Foreign 20 per cent, $27@$27.50 ; 30 per cent, $32 ; Ferro, $60.

Steel Blooms.—$29@$29.50.

Steel Billets.—$30@$30.50.

Steel Nail Slabs.—$30@$30.50.

Steel Wire Rods.—$39@$39.50 for shipment.

Steel Rails.—Heavy sections, nominally $38@$39 at mill. Light sections, $41@$44 at mill. Foreign Rails are quoted $40 at New Orleans.

Structural Iron and Steel —At mill : Bridge Plate, 2@2·2c. ; Angles, 2·25@2·3c. ; Tees, 2·7@2·8c., Steel Angles, 2·6@2·75c. From dock, Beams and Channels, 3·3c., base.

Steel Plates.—On wharf : Tank and Ship, 2·85@3c. ; Boiler Shell, 3¼@3½c. ; Boiler Flange, 3¼@3¾c. ; Boiler Fire-Box, 4@4½c.

Merchant Steel.—American Tool Steel, 7½@10c. ; special grades 10@20c. ; Crucible Machinery Steel, 4½@6c. ; Bessemer Machinery and Spring, 2·7@3c. ; Bessemer Cutlery, 3·2c.

Plate Iron.—Common Tank, 2·4@2·5c. ; Refined, 2·5@2·6c. ; Boiler Shell, 2·7@2·8c. ; Boiler Flange, 3·7@3·8c. ; Extra Flange, 4¼@4½c.

Bar Iron.—For Refined, 2·1@2·2c., base at wharf; Common, 1·9@2c., base at wharf.

Cast-Iron Pipe.—$34@$40, according to size.

Rail Fastenings.—Spikes, 2·55@2·65c., delivered; Angle Fish-Bars, 2·2@2·25c. ; Bolts and Square Nuts, 3·1@3·2c. ; Bolts and Hexagonal Nuts, 3·3@3·4c.

Scrap Iron.—Foreign, ex ship, at $20@$21 ; No. 1 yard scrap, at $22@$23

Old Rails.—Tees, $21@$22 ; Double-Heads, $22@$23.

Nails—$2.10@$2.25 in carload lots.

Louisville. June 14.

[Reported by GEORGE H. HULL & Co.]

The market for standard grades of pig-iron has about held its own, and still continues to show some strength. Silver gray and off colored lots are still a drug on the market, and sellers are apt to meet the views of buyers and make concessions. One large purchaser here has recently bought from seven to ten thousand tons of iron, without much difficulty in getting his offers accepted.

We hear a report of a sale of several hundred tons of a favorite brand of Gray Forge iron at 50 cents per ton over sales made by the same furnace last week.

We quote for cash as below :

PIG-IRON.

Southern Coke, No. 1 Foundry.....	$20.50@$21.00
" " No. 2 "	19 00@ 20 00
" " No. 2½ "	18.50@ 19 00
Hanging Rock Coke, No. 1 Foundry	19.00@ 20.00
" " Charcoal, No. 1 Foundry..	....
Southern Charcoal, No. 1 Foundry.... ...	21 00@ 22.00
Silver Gray, different grades.....	17.50@ 18.50
Southern Coke, No. 1 Mill, Neutral.....	17.50@ 18.00
" " No. 2 " "	17.00@ 17.50
" " No. 1 Mill, Cold Short...	17.50@ 18.00
" Charcoal, No. 1 Mill	18.50@ 19 50
White and Mottled, different grades	16 00@ 17.00
Southern Car-Wheel, Standard Brands....	25 00@ 26.00
" " Other "	23 00@ 24.00
Hanging Rock, Cold-Blast.....	25.00@ 26 00
" " Warm-Blast..	22.00@ 23 00

Philadelphia. June 16.

[From our Special Correspondent.]

	$	$		$	$
Foundry No. 1	20.50@	21 50	Muck-Bars	32.50@	33.00
Foundry No. 2	18.50@	20 00	Merchant Iron	2@	2·20c.
Gray Forge	18.00@	18.50	Plate Iron	2.30@	2.40
Bessemer Pig	20.50@	21.00	Tank Iron	2 30@	2.40
Foreign material :			Skelp Iron	2.15@	.....
Steel Rail Bl'ms	30.00@	30.50	*Structural iron :*		
Foreign Bess'r	29.50@	.....	Angles	2.30@	...
Spiegeleisen	27.50@	.....	B'ms and Chan	3 30@	.....
Scrap, Selected	23.50@	.....	Nails	2.10@	2 25
No. 1	23 00@	.....	Steel Rails	39.50@	41.00
Cargo Scrap	22.00@	.....	Old Rails	22.00@	22 50

Pittsburg. June 16.

[From our Special Correspondent.]

The iron and coke markets are more unsettled than at date of last report. The opinion was pretty general some days since that a settlement was close at hand, the movement of Carnegie Bros. & Co., and the resignation of Henry C. Frick as president of the Frick Coke Company, has started every movement looking to a settlement adrift, and there is no telling when they will reach shore. The adjourned meeting of furnace men was held as per appointment. The majority of furnaces were represented and the question fully and carefully considered in all its bearings. Last week they decided they would not pay more than $1.50 for coke. At this meeting they reaffirmed their former action, a resolution to that effect being unanimously adopted. They also passed a resolution to the effect that they wanted the price of coke equalized, and that the discrimination heretofore practiced must be done away with if the coal producers wished to hold the furnacemen's trade The latter claim that it has been the custom heretofore to unjustly discriminate against large holders in favor of certain powerful steel rail manufacturers. The meeting adjourned after passing the above resolutions. What the coke operators say—they will not grant an advance in wages nor reduce the price of coke. They have taken a decided stand in regard to the strike. The meeting was the most important that has been called : the coke operators from every section of the Connellsville region were on hand. The Producers' Association and the outside operators were all represented; of the members of the old syndicate, including the firms of Moore and Cochran, all were represented with the exception of the Carnegie interests. Th

meeting was short, but harmony marked its proceedings. All present promised to stand by each other in whatever plan was decided upon. *Resolved*, That we reaffirm our position to make no advance in wages. The sales of iron were exceedingly light, prices very uncertain, with a wide range in values.

	$	$		$	$
Coke or bituminous :			Muck-Bar	31.50@32.00	
Foundry No. 1	20.50@21.00		Steel Blooms	32.00@33.00	
Foundry No. 2	20.00@20.25		Steel Slabs	31.00@33.00	
Gray F., No. 3	18.50@18.75		Steel Crop Ends	22.00@22.50	
" " No. 4	18.00@18.25		St'l Bl'm Ends	21.50@22.00	
White	17.50@		Old Iron Rails	24.50@25.00	
Mottled	17.50@		Old Steel Rails	23.50@24.50	
Silvery	19.00@		No. 1 W. Scrap	21.00@22.00	
Bessemer	21.25@24.00		No. 2 W. Scrap	20.00@20.50	
Charcoal :			Steel Rails	40.00@40.50	
Foundry No. 1	24.00@25.00		" light sect's	40.00@44.00	
Foundry No. 2	23.00@24.00		Bar Iron	2.00@	
Cold-Blast	26.00@29.00		Nails $2.15 net car lots.		
Warm-Blast	24.00@25.00		Steel Nails $2.15 net car lots.		
20 p. c. Spiegel	@31.00		Two per cent off for cash.		

SALES SINCE OUR LAST REPORT.

We have to report a very unsettled iron market. Sales very much restricted. No change in the situation is likely to take place until the coke scale and furnace questions are settled.

Coke and Coal Smelted Lake Ore.

1000 Tons Bessemer, Spot	$21.25 cash.
500 Tons Bessemer, "	21.50 cash.
300 Tons Gray Forge, Mill	17.00 cash.
300 Tons No. 1 Mill, Extra	19.50 cash.
25 Tons No. 1 Foundry, all ore	22.00 4 mo.
25 Tons No. 2 " "	19.50 cash.
20 Tons No. 2 " "	19.50 cash.

Coke—Native Ore.

110 Tons Silvery Foundry	19.00 cash.
25 Tons No. 2 Foundry	20.50 cash.

Charcoal.

75 Tons No. 1 Foundry	24.50 cash.
60 Tons No. 2 Foundry	23.50 4 mo.
50 Tons Cold Blast	26.50 cash.

Steel Crop Ends.

100 Tons American	22.50 cash.

Old Iron Rails.

500 Tons American T's Western delivery	23.00 cash.
550 Tons Imported T's	24.50 cash.
500 Tons Imported DH	25.00 cash.

Muck Bar.

500 Tons Good Neutral	32.00 4 mo

FINANCIAL.

NEW YORK, Friday Evening, June 17.

The collapse of the great wheat deal in Chicago has been the absorbing topic in financial circles the greater part of the week. Of course the closing out of such immense transactions (with a loss to the clique of, it is said, $7,000,000) disturbed values, for many had to realize on stocks and bonds to save themselves, and others sold in order to take advantage of the break in prices to buy. On the whole, the effect on the New York market was much less than might have been expected. And it indicates a sound and healthy market to stand such a strain with so slight a variation.

It is said that the completion of the Baltimore & Ohio deal is near at hand, and that it will affect the market; but these things are generally discounted long before hand by those who are on the inside, and the flurry which comes when the deal is announced is short-lived.

The Reading deal has not yet been completed, but it appears pretty certain that the Pennsylvania Railroad, the Reading, and the Lehigh Valley will have a management working together in harmony.

The ruling of the Inter-State Commerce Commissioners on the long and short haul question has been issued.

This ruling practically grants to railroads every immunity they had expected. It does not entirely abrogate the Inter-State law : but the commission could not do that. What the decision does is to offer exemption from the law to all railroads in all cases where circumstances and conditions for long and short hauls are in any respect unlike, excepting where the unlikeness is merely in respect to the expenses of carrying. Water competition, foreign competition, and cases where enforcement of the clause would paralyze domestic competition, are all to be accepted as valid pleas for exemption. It is difficult to see how the decision could have been made more sweeping.

Mining Stocks.

The mining market during the past week has been characterized by very small dealings, and almost general shrinkage in values. This is attributed in part to the failure of the San Francisco market to make any headway, and also to the demoralization in business circles generally, on account of the panic in wheat and coffee, which at one time threatened to make itself felt on the Stock Exchange as well, and caused general uneasiness in Wall street.

The manipulators of Amador and Middle Bar, after permitting their shares to take care of themselves the past month, decided on Wednesday to infuse some life into the nostrils of the almost defunct twin brothers, and permitted both shares to slide down at a rapid gait. Amador, especially, was considered a trifle too high to induce the public to bite, and was permitted to drop from $2 to $1.10, at which figure sales were made to-day. Middle Bar was treated with more compassion, and suffered a less serious break, going from $1 to 78c., selling again to-day at 80c.

Brunswick has kept up remarkably well. There have been frequent hints on the Consolidated Exchange that the stock would be subjected to one of those reactions which are the fate of almost all shares that have steadily climbed up, but there are good reasons for believing that the stock, if not forced up considerably, is not likely to suffer a decline of any importance. The price continues firm at from $1.55 to $1.60, sales showing 31,600 shares. Stanislaus continues its downward trip, going from $1.90 to $1.55. Sales of only 1800 shares are reported.

Plymouth Consolidated has declared its fiftieth dividend, and has now paid $2,000,000, or $20 per share, in dividends, with indications that another $20 may gradually be added. The price remains unchanged at $20.25.

Quicksilver Preferred and Common show but a small business. The former was quoted at from $33.88@$33.50, and the latter from $7@$6.50. Bodie Consolidated shows but one sale at $2.75. Standard, a few at from $1.15@$1.05, and Mono one at $2.65. Taylor Plumas declined from 4@2c.

In the face of warnings from San Francisco that the market will be good for a general advance before a very great while, Sutro Tunnel has been very weak and lower prices were reached towards the close of the week. It opened at 39c. and declined to 22c. to-day. The transactions amounted to 10,200 shares. Consolidated California & Virginia were quiet, and sales were made only on Saturday and Monday at $22.13 and $22. Little has been doing in the other Comstocks. Hale & Norcross shows one sale at $5 ; Savage, one at $5.25 ; Union Consolidated at $3.60 ; Julia at 70c. ; Mexican at $5.13. Sierra Nevada opened at $4.70, advanced to $4.90 and declined again to $4 50. Ophir is quoted at from $9.88 to $10.

The Tuscarora stocks were quiet. Belle Isle sold at from 97c.@$1, Navajo at from $1.15@$1.10, and North Belle Isle at $8.75.

Eureka shows a few transactions at $6.

Ontario remains unchanged at $25, and some twenty-five hundred shares of Stormont changed hands at 10c. No sales of Horn-Silver are reported.

A sale of a thousand shares of Alice was made at $1.25.

Application has been made to have the stock of the San Sebastian Mining Company, which is now being dealt in at the Stock Exchange, listed at the Consolidated Stock and Petroleum Exchange. During the week, sales were made of this stock at from $3.75@$4.

Rappahannock has been dull and weak, and has almost faded from sight the past week. Few sales were made at prices ranging from 19@22c.

Santiago has been almost wholly neglected. None but magnificent reports come from the superintendent at the mine, and still the stock lags behind with very little indications of recuperation. It is quoted at $3.20@$3.30.

No interest has been manifested in Phœnix, which opened at $1.13, and has since been selling down to $1.

Silver King shows a sale at $8.50.

The demand for El Cristo has been remarkably light. More private advices are reported at hand, and these, it is claimed, repeat the same old story of "the grandest mine in the world." It was given out on the Consolidated Stock and Petroleum Exchange on Thursday that the insiders would certainly be in shape within ten days to give the stock another fine "send off," which, of course, means a big advance in price. The price shows a little variation and fluctuated during the week between $6.25@$5.63. Sales were made to-day at from $6.13@$5.88.

Security stil shows very large dealings on paper. The cloud hanging over the stock has thickened, and suspicion of its worthlessness has intensified the past week. Glowing reports of what the non-experts discovered at the mine during their recent visit have been widely distributed through the press. It is now doubted whether more than 1000 shares of the stock of the entire capitalization is held by outsiders. The price advanced from $6.38 to $9, but only one sale was made at the latter figure. To-day's quotations show $7.25 to $7.

Nothing is doing in the other Colorado stocks. Leadville shows a small business at 66c., and Little Chief at from 30 to 33c. Dunkin at 45c. Breece at 55c., and Lacrosse at 12@13c.

The Homestake Gold Mining Company has declared its usual monthly dividend of $25,000. The price of the stock holds its own at $15.25. Deadwood-Terra shows a small business at from $1.90@$1.95. The same may be said of Caledonia, which is selling at from $1.50@$1.55.

Dividends.

Big Bend Hydraulic Company, of Dakota, has declared a dividend of three cents per share, or $6,000, payable on the 20th inst., at No. 181 Broadway, New York City.

Plymouth Consolidated Gold Mining Company, of California, has declared a dividend, No. 50, of twenty-five cents per share, or $25,000, payable July 15th, at 23 Nassau street, New York City.

Russell Reduction and Mining Company has declared a dividend, No. 1, of five cents per share, payable June 8th, at 328 Montgomery street, room 24, San Francisco, Cal.

Homestake Mining Company, of Dakota, has declared a dividend, No. 107, of twenty cents a share, or $25,000, payable June 25th, at Messrs. Lounsbery & Co.'s, No. 15 Broad street, New York City.

Meetings.

The annual and special meetings of the following companies will be held at the times mentioned :

Chartiers Valley Natural Gas Company, Hamilton Building, Fifth avenue, Pittsburg, Pa., June 30th, at two o'clock P.M., special meeting for the purpose of voting for or against an increase of the capital stock.

Small Hopes Consolidated Mining Company, No. 1 Broadway, New York City, June 28th, at two o'clock P.M.

Pipe Line Certificates.

Messrs. Watson & Gibson, Brokers, 49 Broadway, report as follows for the week :

The petroleum market is not important enough at present to justify comment. It is completely dead. When coffee and wheat broke in a panic and stocks reacted early in the week, petroleum sympathized to the extent of a point and a half, but since the general public is pretty much out of the market there was no excitement. We look for higher prices when any leaders come in to move the market.

The following table gives the quotations and sales at the Consolidated Stock and Petroleum Exchange :

	Opening.	Highest.	Lowest.	Closing.	Sales.
June 11	63⅛c.	63¾c.	63⅛c.	63⅛c.	795,000
13	63¾	64⅛	63⅝	63⅝	1,742,000
14	63⅛	63½	62⅝	62⅝	1,580,000
15	62¾	63¼	62	62⅝	1,377,000
16	62¾	63¼	62⅛	62⅜	1,247,000
17	62⅞	63⅛	62¾	62⅝	758,000
Total sales in barrels					7,499,000

Assessments.

COMPANY.	No.	When levied.	Delinquent in office.	Day of sale.	Amount.
Best & Belcher, Nev	37	June 3	July 8	Aug. 2	.50
Belt Cons., Dak	3	May 4	June 4	June 21	¼
Clipper	....	May 21	June 3	July 16	.01
Crocker, Ariz	4	May 6	June 22	July 13	.15
Challenge, Cal	3	May 26	June 28	July 18	.30
Elk Mountain, Dak	1	May 25	June 24	July 9	.001
General Sturgis, Dak	....	June 7	July 9	July 25	.02
Golden Fleece, Cal	9	Apr. 26	June 3	June 30	.10
Gould & Curry, Nev	56	June 3	July 8	Aug. 2	.50
Hailey Hill, Id	....	May 6	June 10	June 29	.02
Heath, Id	1	May 20	June 30	July 25	.15
Homew'd B'nd, Dak	4	May 16	June 17	July 16	¼
Inyo Marble, Cal	2	May 28	June 30	July 16	.01
Jefferson, Dak	....	May 5	June 30	July 21	.01
Keokuk, Dak	4	May 9	June 9	June 25	¼
King of the West, Id	1	May 31	July 5	July 25	.15
Locomotive, Ariz	1	June 1	July 1	July 20	.25
Manhattan, Nev	6	June 1	July 1	July 21	1.00
Mayflower Gravel, Cal	36	June 2	July 6	July 29	.25
Morrell Cons., Cal	2	May 31	July 2	July 20	.03
Maxfield	....	May 2	June 4	July 1	.04
Minna Dak	5	May 13	June 21	July 10	¼
New Coso, Cal	20	Apr. 15	June 1	June 25	.10
Pilot Peak, Cal	15	May 7	June 20	July 18	¾
Pioche Cons., Nev	1	Apr. 20	June 27	July 16	.60
Seabury Calkins, Dak	6	June 7	July 9	July 25	.01
San Luis, Cal	9	May 19	June 19	July 8	.48
Scorpion, Nev	21	Apr. 27	June 3	June 24	.10
Silver Mt	....	May 11	June 11	July 10	.12½
Transit, Dak	1	May 5	June 6	July 2	¼
Trojan, Nev	15	Apr. 29	June 2	June 30	.10
William Penn, Cal	1	Apl. 29	June 8	June 28	.10

* The delinquent day and the day of sale were postponed to dates given above.

Baltimore Stock Quotations.

COMPANY.	Bid.	Asked.
Atlantic Coal	$1.60	$1.75@$2.00
Baltimore & N. Carolina	.63@ .64	.62@ .65
Big Vein Coal	....	——@$1.25
Conrad Hill	.10@ .13	——@ .20
Diamond Tunnel	.40@ .50	.....
George's Creek Coal	78.50@80.00	82.00@85.00
Lake Chrome	.10	.16@ .20
North State (Balt.)	.60@ .71	.62@ .80
Ore Knob	.10@ .12	.12@ .13
Silver Valley	1.85@ 1.90	——@ 2.0

Highest and lowest prices bid and asked during the week ended June 16th.

Birmingham, Ala., Stock Quotations.

Company.	Bid.	Asked.
Alabama Connellsville C. & C.	....	100
Birmingham Min. & Mfg. Co.	....	300
* Coalburg Coal & Coke Co.	...	...
Debardleben C. & I. Co	....	105
Decatur Land & Imp. Co.	19@20¼	20@ 20½
Decatur Mineral Land Co.	18@20	...
Enterprise Mfg. Co.	75	95@100
Sloss Iron & Steel Co	....	....
* Sloss Iron & Steel Co	89	...
Sheffield Coal & Iron Co.	....	120@147½
Selma Land & Imp. Co	...	...
Tuscaloosa C. & I. Co., paid	50	97½
Tuscaloosa C. & I. Co.	20	25@ 31
Woodstock Steel & Iron Co.	....	72

* Bonds. † Thirty per cent paid.

Highest and lowest prices bid and asked during the week ended June 14th.

Boston Mining Stocks.

[From our Special Correspondent.]

BOSTON, June 16.

The market the past week has been fairly active, with Osceola the principal feature, but with this difference : last week it was active on a buying and advancing market, this week on a selling and declining one. The stock opened at $32 and touched $32½, after which it gradually declined, until to-day it sold at $28½, which brings it down to about where the recent boom started. We can not learn of any special cause for the decline other than the law of supply and demand, as advices from the mine are fully as favora

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par	Assessments. Total levied.	Assessments. Date and amount of last		Dividends. Total paid.	Dividends. Date and amount of last.		
1	Adams, S. L.	Colo.	$1,500,000	150,000	$10	*	.....	.....	$555,000	Jan.	1887	.15
2	Alice, S. C.	Mont	10,000,000	400,000	25	*	.....	.....	750,000	Sept	1886	.06¼
3	Alturas, G	Idaho.	1,500,000	300,000	5	.....	.....	.....	95,000	Sept	1886	.50
4	Amie Con., S. L.	Colo.	5,000,000	500,000	10	*	.....	.....	330,000	Oct.	1883	.05
5	Amy & Silversmith, S.	Mon.	.....	341,419	....	.....	.....	.....	264,852	Dec.	1886	.10
6	Atlantic, C.	Mich	1,000,000	40,000	25	$280,000	Apl.	1875 $1.00	360,000	Jan.	1887	$1.00
7	Argenta, S	Nev..	10,000,000	100,000	100	295,000	July	1885 .10	40,000	Feb.	1880	.20
8	Aurora, L.	Mich.	1,000,000	40,000	25	.....	.....	.....	40,000	Apl.	1887	1.00
9	Barbee & Walker, S.	Utah	1,000,000	100,000	10	*	.....	.....	80,000	Nov	1880	.10
10	Bassick, G. S.	Colo.	10,000,000	100,000	100	*	.....	.....	400,000	Mar.	1884	1.00
11	Belle Isle, S.	Nev..	10,000,000	100,000	100	160,000	Feb	1887 .20	300,000	Dec.	1879	.25
12	Belcher, G. S.	Nev..	10,400,000	104,000	100	2,217,335	Dec.	1885 .30	15,397,000	Apl.	1876	1.00
13	Bellevue Idaho, S. L.	Idah.	1,250,000	125,000	10	26,250	Dec.	1883 10	200,000	Jan	1887	.10
14	Big B'nd Hydraulic, G	Dak..	1,000,000	200,000	5	*	.....	.....	246,000	Jun.	1887	.03
15	Black Bear, G.	Cal..	3,000,000	30,000	100	22,500	Dec.	1884 .25	895,000	May	1883	.20
16	Bodie Con., G. S.	Cal..	10,000,000	100,000	100	374,990	Jan.	1887 .50	1,602,572	Apl.	1885	.50
17	Bonanza Developm't	C & M	3,000,000	300,000	10	.....	.....	.....	135,000	Oct.	1882	.15
18	Bonanza K'g, Cons. S.	Cal..	1,000,000	100,000	10	*	.....	.....	185,000	Feb.	1880	.10
19	Boston & Mont, G.	Mont	2,500,000	250,000	10	*	.....	.....	520,000	Jun	1886	.15
20	Breece, S.	Colo.	5,000,000	200,000	25	*	.....	.....	2,000	Feb.	1880	.01
21	Brooklyn Lead, L. S.	Utah	500,000	50,000	10	.....	.....	.....	102,000	Sept	1886	.05
22	Bulwer, G.	Cal	10,000,000	100,000	10	40,000	Oct.	1885 .20	175,006	Jan.	1884	.10
23	Caledonia, G.	Dak.	10,000,000	100,000	100	505,000	May	1885 .15	40,000	Feb.	1886	.10
24	Calumet & Hecla, C.	Mich	2,500,000	100,000	25	1,200,000	..	.....	28,850,000	Mar.	1887	5.00
25	Carbonate Hill, S. L.	Colo.	2,000,000	200,000	10	*	...	.....	80,000	Apl.	1884	.05
26	Caribou Con., S.	Colo.	1,500,000	150,000	10	*	.....	.....	50,000	Mch	1880	.10
27	Castle Creek, G.	Idah.	100,000	100,000	1	.....	.....	.....	51,000	Oct.	1883	.03
28	Catalpa, S. L.	Colo.	3,000,000	300,000	10	*	.....	.....	270,000	May.	1884	.10
29	Central, C.	Mich	500,000	20,000	25	100,000	Sept	1861 .06	1,820,000	Feb.	1887	2.00
30	Christy, S.	Utah	10,000,000	100,000	100	.....	.....	.....	10,000	Jun.	1885	.10
31	Chrysolite, S. L.	Colo.	10,000,000	200,000	50	*	.....	.....	1,650,000	Dec.	1884	.25
32	Colorado Central, S. L	Colo.	2,750,000	275,000	10	*	.....	.....	212,500	Jun.	1887	.05
33	Cons. Cal. & Va., G. S.	Nev..	21,600,000	216,000	100	108,000	Jan.	1885 .20	712,000	Jun.	1887	.50
34	Con. Gold Mining, G.	Ga...	500,000	100,000	5	*	.....	.....	108,000	Nov.	1883	.02
35	Contention, S	Ariz.	12,500,000	250,000	50	.....	.....	.....	2,587,000	Dec.	1884	.25
36	Crescent, S. L. G.	Utah	15,000,000	600,000	25	‡	.....	.....	210,000	Aug.	1886	.05
37	Crown Point, G. S.	Nev..	10,000,000	100,000	100	2,675,000	Feb.	1882 .25	11,588,000	Jan.	1875	2.00
38	Daly, S. L.	Utah	.....	150,000	....	.....	.....	.....	150,000	May	1887	.25
39	Deadwood-Terra, G.	Dak..	5,000,000	200,000	25	*	.....	.....	$900,000	Jan.	1883	.10
40	Derbec B. Grav., G. S.	Cal..	10,000,000	100,000	100	90,000	Dec.	1881 .10	180,000	May	1887	.10
41	Dunkin, S. L.	Colo.	5,000,000	200,000	25	*	.....	.....	220,000	Sept	1884	.05
42	Elkhorn, G. S.	Mont	1,000,000	100,000	10	50,000	July	1883 .50	175,000	May	1887	.05
43	Eureka Con., G. S. L.	Nev..	5,000,000	50,000	100	500,000	July	1886 1.00	4,817,500	July	1882	.25
44	Evening Star, S. L.	Colo.	500,000	50,000	10	*	.....	.....	1,400,000	Nov	1883	.50
45	Excelsior, G.	Cal..	10,000,000	100,000	100	560,000	Sept	1885 1.00	875,000	Oct.	1880	.25
46	Father de Smet, G.	Dak..	10,000,000	100 000	100	200,000	Nov	1878 1.00	1,125,000	Dec.	1885	.20
47	Franklin, C.	Mich	1,000,000	40,000	25	220,000	Jun	1871	560,000	Dec.	1886	1.00
48	Freeland, G. S. C.	Colo.	5,000,000	200,000	25	*	.....	.....	190,000	July	1886	.10
49	Fresno Enterprise, G	Cal..	5,000,000	100,000	50	.....	.....	Mch 1883 .10	110,000	July	1882	.10
50	Garfield Lt., G. S	Nev.	500,000	100,000	5	.....	.....	.....	25,000	Mar.	1885	.12½
51	Gould & Curry, G. S.	Nev..	10,800,000	108,000	100	4,159,400	Jun	1887 .50	3,826,000	Oct.	1870	10.00
52	Grand Central, S.	Ariz.	1,000,000	100,000	10	.....	.....	.....	625,000	Dec.	1882	.25
53	Grand Prize, S.	Nev..	10,000,000	100,000	100	570, 00	Apl.	1886 .50	495,000	Mar.	1884	.25
54	Granite, S.	Colo.	500,000	125,000	1	.....	.....	.....	6,250	May	1883	.01
55	Granite Mountain, S.	Mont	10,000,000	400,000	25	.....	.....	.....	2,500,000	Jun.	1887	.50
56	Green Mountain, G.	Cal..	1,250,000	125,000	10	*	.....	.....	212,000	Nov.	1881	.07½
57	Hale & Norcross, G. S	Nev..	11,200,000	112,000	100	5,030,800	Mar.	1887 .50	1,598,000	Apl	1871	5.00
58	Hall-Anderson, G.	N. S..	150,000	150,000	1	.....	.....	.....	7,000	Jan.	1882	.05
59	Hecla Con., S. G. L. C	Mont	1,500,000	30,000	50	.....	.....	.....	1,047,000	Aug.	1886	.50
60	Hel'a Mg & Red, G. S. L	Mont	3,315,000	663,000	5	*	.....	.....	197,970	July	1886	.06
61	Holmes, S.	Nev..	10,000,000	100,000	100	300,000	Sept	1885 10	75,000	Apl.	1886	.25
62	Holyoke, G.	Idah.	200,000	200,000	1	.....	.....	.....	27,000	Feb.	1883	.10
63	Homestake, G.	Dak.	12,500,000	125,000	100	200,000	July	1878 1.00	3,843,750	Jun.	1887	.20
64	Hon orine, S. L.	Utah	500,000	250,000	2	25,000	Jun	1883	100,000	Apl.	1887	.05
65	Hope, S.	Mont	400,000	8,000	50	*	.....	.....	168,252	Oct.	1884	1.50
66	Horn-Silver, S. L.	Utah	10,000,000	400,000	25	*	.....	.....	4,000,000	Nov.	1884	.50
67	Idaho, G.	Cal..	310,000	3,100	100	.....	.....	.....	4,339,500	Apl.	1887	5.00
68	Ideal, S. L.	Colo.	1,500,000	150,000	10	.....	.....	.....	15,000	Oct.	1886	.05
69	Illinois, S.	N. M.	100,000	100,000	1	*	.....	.....	25,000	Jan	1887	.25
70	Independence, S.	Nev..	10,000,000	100,000	100	340,000	Oct.	1886 .20	225,000	Sept	1879	.25
71	Indian Queen, S.	Nev..	250,000	125,000	2	.....	.....	.....	368,750	July	1883	.03
72	Inyo, G.	Cal..	500,000	100,000	5	*	.....	.....	45,000	Apl.	1882	.05
73	Iron Hill, S.	Dak.	2,500,000	250,000	10	82,500	Oct.	1885	112,500	Oct.	1886	.05
74	Iron-Silver, S. L.	Colo.	10,000,000	500,000	20	*	.....	.....	2,000,000	Jun.	1887	.20
75	Jackson, G. S.	Nev.	5,000,000	50,000	100	10,000	Nov.	1880 .20	45,000	Oct.	1886	.10
76	Jocuistita, S.	Mex.	2,500,000	250,000	10	.....	.....	.....	1,200,000	Feb.	1885	.50
77	Jumbo, G.	Colo.	2,000,000	200,000	10	.....	.....	.....	10,000	May	1887	.02½
78	Kentuck	Nev..	3,000,000	30,000	100	342,000	Nov	1881 .30	1,600,000	Dec.	1886	.10
79	La Plata, S. L.	Colo.	2,000,000	200,000	10	*	.....	.....	610,000	Sept	1882	.30
80	Leadville Cons., S. L. I.	Colo.	4,000,000	400,000	10	*	.....	.....	430,000	Apl.	1887	.05
81	Lexington, G. S.	Mont	4,000,000	40,000	100	*	.....	.....	565,000	Jan.	1885	2.00
82	Little Chief, S. L.	Colo.	10,000,000	200,000	50	*	.....	.....	780,000	Mch	1885	.10
83	Little Pittsburg, S. L.	Colo.	20,000,000	200,000	100	*	.....	.....	1,050,000	Mch.	1880	50
84	Manhattan, S.	Nev.	5,000,000	50,000	100	300,000	Jun.	1887 1.00	437,500	Feb	1886	.25
85	Marguerite, G.	Cal..	500,000	25,000	20	.....	.....	.....	18,750	Oct.	1882	.25
86	Marion Bullion, G	N. C.	500,000	.....	....	.....	.....	.....	15,000	Jan.	1886	.....
87	Martin White, S.	Nev..	10,000,000	100,000	100	1,150,000	Mar.	1886 25	140,000	Dec.	1887	.25
88	Mary Murphy, G. S.	Colo.	350,000	3,500	100	*	.....	.....	70,000	Apl.	1887	5.00
89	Minnesota, C.	Mich	1,000,000	40,000	25	420,000	Apl.	1886 1 00	1,826,000	Mar.	1876	.....
90	Mono, G.	Colo.	5,000,000	50,000	100	585,000	Mar.	1887 .50	12,500	Mar.	1886	.25
91	Montana, Lt., G. S.	Mont	3,300,000	330,000	10	*	.....	.....	999,900	Jan.	1887	.02
92	Morning Star, S. L.	Colo.	1,000,000	100,000	10	.....	.....	.....	675,000	Dec.	1886	.25
93	Moulton, S. G.	Mont	2,000,000	400,000	5	*	.....	.....	351,000	May	1887	.07½
94	Mount Pleasant, G.	Cal.	150,000	150,000	1	*	.....	.....	150,000	Feb.	1887	.30
95	Mt. Diablo, S.	Nev.	5,000,000	50,000	100	137,500	Jun.	1880 2.00	80,000	July	1885	.20
96	Napa, Q.	Cal..	700,000	100,000	7	.....	.....	.....	200,000	Jan.	1883	.10
97	Navajo, G. S.	Nev..	10,000,000	100,000	100	450,000	Mar.	1887 30	325,000	Feb.	1880	.25
98	N. Hoover Hill, G. S.	N. C.	300,000	120,000	2½	*	.....	.....	30,000	Dec.	1885	.06½
99	New York Hill, G.	Cal..	5,000,000	50,000	100	62,500	Oct.	1885 .15	215,000	Aug.	1882	.10
100	Northern Belle, S.	Nev..	5,000,000	50,000	100	425,000	Jan.	1884 8.00	2,400,000	Apl.	1883	.50
101	North Belle Isle, S.	Nev..	10,000,000	100,000	100	250,000	Mar	1887 .50	30,000	Aug.	1881	.15
102	Ontario, S. L.	Utah	15,000,000	150,000	100	.....	.....	.....	8,360,000	May	1887	.50
103	Ophir, G. S.	Nev..	10,000,000	100,000	100	4,007,800	Dec.	1886 .50	1,595,000	July	1882	1.00
104	Original, S. C.	Mont	1,500,000	60,000	25	*	.....	.....	123,000	Jun.	1887	.05
105	Osceola, C.	Mich	1,250,000	50,000	25	480,000	Apl.	1876 1.60	1,022,500	Jan.	1887	1 00
106	Oxford, G.	N. S.	125,000	125,000	1	*	.....	.....	38,500	Oct.	1885	.02
107	Paradise Valley, G. S	Nev.	10,000,000	100,000	100	47,000	Mar.	1882 .15	150,000	Apl.	1887	.10
108	Parrott, C.	Mont	1,800,000	180,000	10	.....	.....	.....	18,000	May	1887	.10
109	Peacock, S. G. C.	N. M.	2,000,000	200,000	10	*	.....	.....	60,000	Nov.	1886	.....
110	Pleasant Valley, G. S.	Cal..	10,000,000	100,000	100	10,000	Mar.	1884 .10	30,000	Dec.	1882	.05
111	Plutus, G. S. C. L.	Colo.	2,000,000	200,000	10	*	.....	.....	20,000	Feb.	1886	.10
112	Plymouth Con., G.	Cal..	5,000,000	100,000	50	*	.....	.....	2,000,000	July	1887	.25
113	Prussian, S. L.	Colo.	1,500,000	150,000	10	.....	.....	.....	132,000	Jan	1883	.10
114	Quicksilver, pref., Q.	Cal..	4,300,000	43,000	100	.....	.....	.....	849,650	Jan.	1887	1.50
115	" com., Q.	Cal..	5,700,000	57,000	100	.....	.....	.....	151,000	July	1882	.40
116	Quincy, C.	Mich	1,000,000	40,000	25	200,000	Dec.	1862	4,570,000	Jan	1887	4.00
117	Richmond, S. L.	Nev..	1,350,000	54,000	25	*	.....	.....	4,245,087	Dec.	1886	1.25
118	Ridge, C.	Mich.	500,000	20,000	25	220,000	Mar	1886 .50	100,000	Feb.	1880	.50
119	Rising Sun, S.	Dak..	750,000	150,000	5	*	.....	.....	52,000	May	1881	.07½
120	Robinson Con., S. L.	Colo.	10,000,000	200,000	50	*	.....	.....	585,000	Mar.	1886	.05
121	Robert E. Lee, S. L.	Colo	10,000,000	500,000	20	.....	.....	.....	100,000	Dec.	1882	.10
122	Rooks, G.	Vt...	500,000	50,000	10	*	.....	.....	61,000	Apr.	1885	.30
123	San Francisco, C.	Cal..	5,000,000	50,000	100	45,000	Sept	1885 .50	20,000	Feb.	1886	.05
124	Savage, S.	Nev..	11,200,000	112,000	100	6,212,000	Mar.	1887 50	4,450,000	July	1869	3.00
125	Security L. Mg., Mfg.	Colo.	1,000,000	100,000	10	*	.....	.....	50,000	July	1886	.....
126	Shoshone, G.	Idah.	150,000	150,000	1	.....	.....	.....	7,500	Apl.	1883	.01
127	Sierra Buttes, G.	Cal..	225,000	22,500	10	.....	.....	.....	1,438,964	Oct.	1886	.37
128	Sierra Grande, S.	N. M.	2,500,000	500,000	5	*	.....	.....	860,000	Sept	1884	.35
129	Sierra Nevada, G. S.	Nev..	10,000,000	100,000	100	6,257,000	Apl.	1887 .50	102,000	Jan.	1871	1.00
130	Silver Cord, G. S. L.	Colo.	5,000,000	500,000	10	.....	.....	.....	225,000	Nov.	1883	.25
131	Silver King, S.	Ariz.	10,000,000	100,000	100	.....	.....	.....	1,975,000	Jun.	1887	.25
132	Silverton, G. S. L.	Colo.	2,000,000	200,000	10	*	.....	.....	76,000	Nov.	1886	.02
133	Small Hopes Cons., S.	Colo.	5,000,000	250,000	20	*	.....	.....	2,762,500	May	1887	.20
134	Smuggler, S. L.	Colo.	600,000	60,000	10	.....	.....	.....	66,700	Aug.	1883	.25
135	Socorro, C.	N. M.	250,000	4,300	100	.....	.....	.....	4,000	Mch	1882	.00¾
136	South Yuba, G.	Cal..	2,000,000	9,000	50	*	.....	.....	150,000	Oct.	1881	.75
137	Spring Valley, G.	Cal..	200,000	200,000	1	50,000	Oct.	1886 .25	50,000	Jan.	1881	.25
138	Standard, G. S.	Cal..	10 000,000	100,000	100	25,000	Oct.	1884 .25	4,425,000	Mar.	1884	.25
139	Stormont, S.	Utah	500,000	100,000	1	*	.....	.....	155,000	Nov.	1881	.05
140	St. Joseph, L.	Mo..	1,500,000	150,000	10	*	.....	.....	784,000	Jun.	1887	.20
141	Syndicate, G.	Cal..	10,000,000	100,000	100	38,729	July	1882 .15	48,308	Sept	1885	.10
142	Tip Top, S.	Ariz.	10,000,000	100,000	100	250,000	Sept	1883 .25	100,000	Nov.	1881	.20
143	Tombstone, G. S. L.	Ariz	12,500,000	500,000	25	*	.....	.....	1,250,000	Apl.	1882	.10
144	True Fissure, G. S. L.	Utah	1,500,000	150,000	10	*	.....	.....	75,000	Jun.	1883	.15
145	United Verde, C.	Ariz.	3,000,000	300,000	10	*	.....	.....	97,500	Feb.	1884	.20
146	Valencia, M.	N. M.	150,000	1,500	100	*	.....	.....	37,500	Apl.	1886	2.50
147	Viola Lt., S. L.	Idah.	750,000	150,000	5	*	.....	.....	74,500	May	1887	.12½
148	Vizina, S.	Ariz.	5,000,000	200,000	25	*	.....	.....	140,000	Apl.	1882	.10
149	Yankee Girl	Colo.	2,500,000	250,000	10	.....	.....	.....	1,075,000	Jan	1887	.05
150	Yellow Jacket, G. S.	Nev..	12,300,000	123,000	100	5,448,000	Dec.	1885 .75	2,184,000	Aug.	1871	1.50

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Value.	Assessments. Total levied.	Assessments. Date & am'un of last.		
1	Agassiz Cons., S. L.	Colo.	$2,500,000	50,000	$50	*	.....	.....	.....
2	Albion, S. L.	Nev..	15,000,000	150,000	100	$577,000	July	1883	.50
3	Allouez, C.	Mich	2,000,000	80,000	25	240,000	Feb.	1884	.50
4	Alpha Con., G. S.	Nev..	3,000,000	30,000	100	445,000	Jan.	1887	.50
5	Alta, S.	Nev..	10,080,000	100,800	100	2,027,000	Feb.	1887	.50
6	Amador, G.	Cal..	400,000	200,000	2	*	.....	.....	.....
7	American Flag, S.	Colo.	1,250,000	125,000	10	300,000	Jun.	1877	.25
8	Angio-Montana, Lt.	Mon.	600,000	120,000	5	.....	.....	.....	.....
9	Appalachian, Lt. G.	N. C	1,500,000	300,000	5	.....	.....	.....	.....
10	Aspen Mg. & S., S. L.	Colo.	2,000,000	200,000	10	.....	.....	.....	.....
11	Barcelona, G.	Nev..	5,000,000	200,000	25	*	.....	.....	.....
12	Bechtel Con., G.	Cal..	10,000,000	100,000	100	173,500	Jan.	1883	.10
13	Belmont, S.	Nev..	5,000,000	50,000	100	735,000	Apl	1886	.10
14	Best & Belcher, G. S.	Nev.	10,080,000	100,800	100	1,849,390	Jun.	1887	.50
15	Big Pittsburg, S. L.	Colo.	20,000,000	200,000	100	*	.....	.....	.....
16	Bi-Metallic, S.	Mon.	5,000,000	200,000	25	*	.....	.....	.....
17	Black Jack, G.	Cal..	250,000	100,000	2½	.....	.....	.....	.....
18	Bondholder	Colo	500,000	200,000	2½	.....	.....	.....	.....
19	Boston Con., G.	Cal..	10,000,000	100,000	100	170,000	Nov	1883	.25
20	Bradshaw, S.	Ariz.	2,250,000	225,000	10	*	.....	.....	.....
21	Brunswick, G.	Cal..	2,000 000	400,000	5	*	.....	.....	.....
22	Bullion, G. S.	Nev..	10,000,000	100,000	100	5,000,000	Jan.	1887	.40
23	Bye and Bye	Ariz.	1,000,000	100,000	10	*	.....	.....	.....
24	Calaveras, G.	Cal..	500,000	500,000	1	*	.....	.....	.....
25	Carisa, G.	Wy	500,000	100,000	5	*	.....	.....	.....
26	Cen Contin't, G. S. L.	C. & A	2,000,000	200,000	10	*	.....	.....	.....
27	Charles Dickens, G. S.	Idah.	1,250,000	250,000	5	*	.....	.....	.....
28	Cherokee, G.	Cal..	1,500,000	150,000	10	.....	.....	.....	.....
29	Chollar, S.	Nev..	11,200,000	112,000	100	1,096,000	Nov	1886	.50
30	Cinnamon Mt., G. S.	Colo	750,000	150,000	5	*	.....	.....	.....
31	Climax, S. L.	Colo.	2,000,000	200,000	10	*	.....	.....	.....
32	Colorado No. 2, S. L.	Colo.	100,000	10,000	10	.....	.....	.....	.....
33	Comstock, G. S.	Nev..	10,000,000	100,000	100	30,000	Mar.	1887	.15
34	Con. Imperial, G. S.	Nev..	50,000,000	500,000	100	1,100,000	Aug.	1886	.10
35	Con. Pacific, G.	Cal..	6,000 000	60,000	100	174,000	Feb.	1886	.15
36	Cons Silver, S.	Mo...	2,500,000	250,000	10	.....	.....	.....	.....
37	**Cop. Queen Cons, C.	Ariz	1,400 00	140,000	10	.....	.....	.....	.....
38	Courtlandt	Colo	500,000	50,000	10	.....	.....	.....	.....
39	Crescent, S. L.	Colo.	3,000,000	300,000	10	*	.....	.....	.....
40	Crocker, S.	Ariz	10,000,000	100,000	100	75,000	May	1887	.10
41	Crowell, G.	N. C	500,000	500,000	1	.....	.....	.....	.....
42	Dahlonega, G.	Ga...	250,000	250,000	1	*	.....	.....	.....
43	Dandy, S.	Colo.	5,000,000	500,000	10	.....	.....	.....	.....
44	Dardanelles, G.	Cal..	1,000,000	100,000	10	*	.....	.....	.....
45	Decatur, S.	Colo.	1,500,000	300,000	5	*	.....	.....	.....
46	Denver City, S. L.	Colo.	5,000,000	500,000	10	*	.....	.....	.....
47	Denver Gold	Colo.	300,000	60,000	5	.....	.....	.....	.....
48	Deseret, G. S.	Utah	500,000	50,000	10	*	.....	.....	.....
49	Dunderberg, S.	Colo.	1,500,000	150,000	10	*	.....	.....	.....
50	Durango, G.	Colo.	500,000	500,000	1	*	.....	.....	.....
51	Eastern Dev. Co., Lt.	N. S.	1,500,000	150 000	10	990,000	Mar.	1886	1.00
52	El Cristo, G. S.	U.S.C	1,000,000	500,000	2	.....	.....	.....	.....
53	Empire Lt., G.	Mon.	500,000	100,000	5	*	.....	.....	.....
54	Empire, S.	Utah	10,000,000	100,000	100	*	.....	.....	.....
55	Enterprise, S. L.	Colo.	800,000	80,000	10	*	.....	.....	.....
56	Eureka Tunnel, S. L.	Nev..	10,000,000	100,000	100	*	.....	.....	.....
57	Exchequer	Nev.	10,000,00	100,000	100	800,000	Oct.	1886	.20
58	Gold Cup, S.	Colo.	5 00,000	500,000	1	.....	.....	.....	.....
59	Gold Placer, G.	Colo.	5,000,000	200,000	2 5	229,314	Dec.	1885	.25
60	Goodshaw, G.	Cal..	10,000,000	100,000	100	*	.....	.....	.....
61	Grand Belt, C.	Tex.	12,000,000	120,000	100	.....	.....	.....	.....
62	Grand Duke	Colo.	800,000	80,000	10	*	.....	.....	.....
63	Gregory-Bobtail, G.	Colo.	550,000	550,000	1	*	.....	.....	.....
64	Gregory Con., G.	Mon.	3,000,000	300,000	10	.....	.....	.....	.....
65	Harlem M. & M. Co. G.	Cal.	1,000,000	200,000	5	.....	.....	.....	.....
66	Head Cent. & Tr. S. G	Ariz.	10,000,000	100,000	100	.....	.....	.....	.....
67	Hector, G.	Cal..	1,500,000	300,000	5	.....	.....	.....	.....
68	Highland, C.	Mich	500,000	25,000	25	.....	.....	.....	.....
69	Hortense, S.	Colo.	2,000,000	200,000	10	.....	.....	.....	.....
70	Huron, C.	Mich	1,000,000	40,000	25	280,000	May	1887	.....
71	Iron Gold & Silver, S	N. M.	2,000,000	200,000	10	.....	.....	.....	.....
72	Iroquois, C.	Mich	1,250,000	50,000	25	.....	.....	.....	.....
73	J. D. Reymert	Ariz	10,000,000	100,000	100	*	.....	.....	.....
74	Julia Cons., G. S.	Nev..	11,000,000	110,000	100	1,449,000	Apl.	1887	.10
75	Kearsarge, C.	Mich	1 250,000	50,000	25	100,000	Apl.	1886	5.00
76	Laclede	N. M.	2,000,000	200,000	10	.....	.....	.....	.....
77	Lacrosse, G.	Colo.	1 000,000	100,000	10	.....	.....	.....	.....
78	Lee Basin, S. L.	Colo.	5,000,000	500,000	10	*	.....	.....	.....
79	Lucerne, S.	Colo.	5,000,000	500,000	10	*	Jan.	1885	.10
80	Mammoth Bar, G.	Cal..	10,000,000	100,000	100	50,000	Dec.	1881	.....
81	Mariposa pref., G.	Cal	5,000,000	50,000	100	1,687,500	Feb.	1883	.25
82	" common, G.	Cal	10,000,000	100,000	100	1,975,000	Dec.	1881	.20
83	May Belle, G.	Cal..	10,000,000	100,000	100	84,000	Mar.	1884	.15
84	Mayflower Gravel.	Cal..	1,000,000	100,000	10	185,000	Jun.	1887	.25
85	Medora, G.	Dak.	250,000	250,000	1	.....	.....	.....	.....
86	Mexican, S. S	Nev..	10,000,000	100,000

NEW YORK MINING STOCK QUOTATIONS.

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	June 11.		June 13.		June 14.		June 15.		June 16.		June 17.		SALES.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Alice, Mon	....	....	....	....	....	....	1.25	....	....	....	....	....	1,000
Argenta, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Bassick, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Belcher, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Belle Isle, Nev	.97	....	....	....	....	....	1.00	....	....	....	....	....	300
Bodie Cons., Cal	2.75	....	....	....	....	....	....	....	....	....	....	....	300
Breece, Colo	....	....	....	....	.55	....	....	....	....	....	....	....	200
Bulwer, Cal	....	....	....	....	....	....	....	....	....	....	1.10	....	100
Caledonia, Dak	....	....	....	....	....	....	....	....	1.55	1.50	....	....	500
Castle Creek, Id	....	....	....	....	....	....	....	....	....	....	....	....	....
Chollar, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Chrysolite, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Colorado Cent'l, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Cons. Cal. & Va., Nev	22.13	....	22.00	....	....	....	....	....	....	....	....	....	200
Crown Point, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Deadwood, Dak	....	....	....	....	1.90	....	....	....	1.90	....	1.95	....	175
Dunkin, Colo	....	....	....	....	....	....	45	....	.45	....	....	....	700
Eureka Cons., Nev	....	....	6.00	....	....	....	6.00	....	6.00	....	....	....	400
Father de Smet, Dak	....	....	....	....	....	....	....	....	....	....	....	....	....
Freeland, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold Stripe, Cal	....	....	....	....	....	....	....	....	....	....	....	....	....
Gould & Curry, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Green Mountain, Cal	....	....	....	....	....	....	....	....	....	....	....	....	....
Hale & Norcross, Nev	5.00	....	....	....	....	....	....	....	....	....	....	....	100
Helena, Mont	....	....	....	....	....	....	....	....	....	....	....	....	....
Holyoke, Idaho	.14	....	.14	....	.14	....	.14	....	.14	....	.14	.13	18,800
Homestake, Dak	....	....	....	....	15.25	....	....	....	....	....	....	....	700
Horn-Silver, Ut	....	....	....	....	....	....	....	....	....	....	....	....	....
Independence, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Iron Hill, Dak	....	....	....	....	....	....	....	....	....	....	....	....	....
Iron Silver, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Leadville C., Colo	....	....	....	....	....	....	.60	....	.60	....	....	....	400
Little Chief, Colo	.31	.30	.33	....	.33	....	....	....	....	....	....	....	1,100
Little Pittsburg, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Martin White, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Mono, Cal	....	....	2.65	....	....	....	....	....	....	....	....	....	100
Moulton, Mont	....	....	....	....	....	....	....	....	....	....	....	....	....
Navajo, Nev	1.15	....	....	....	....	....	....	....	....	....	1.10	....	1,100
North Belle Isle, Nev	8.75	....	....	....	....	....	....	....	....	....	....	....	100
Ontario, Ut	....	....	25.00	....	....	....	25 00	....	....	....	....	....	205
Ophir, Nev	10.00	9.88	....	....	....	....	....	....	....	....	....	....	150
Plymouth, Cal	20.25	....	20.25	....	....	....	....	....	20.25	....	....	....	320
Quicksilver Pref., Cal	....	....	....	....	....	....	....	....	33.38	33.50	33.50	....	810
" Com., Cal	....	....	7.00	....	6.50	....	....	....	....	....	....	....	700
Robinson Cons., Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Savage, Nev	5.25	....	....	....	....	....	....	....	....	....	....	....	100
Sierra Nevada, Nev	....	....	....	....	4.70	....	....	....	....	....	....	....	225
Silver King, Ariz	....	....	....	....	8.50	....	....	....	....	....	....	....	200
Standard, Cal	1.15	....	....	....	....	....	1.05	....	....	....	....	....	220
Stormont, Ut	....	....	....	....	.10	....	....	....	.10	....	....	....	2,500
Yellow Jacket, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....

NON-DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	June 11.		June 13.		June 14.		June 15.		June 16.		June 17.		SALES.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Alta, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Amador, Cal	2.00	....	2 00	....	2.00	1.80	1.30	1.30	1.35	1.25	1.35	1.10	10,200
Am. Flag, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Barcelona, Nev	....	....	....	....	....	....	.30	.29	....	....	....	....	900
Bechtel Con., Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Best & B'lcher, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Big Pittsb'g, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Brunswick	1.60	1.55	1.55	....	1.55	....	1.55	....	1.55	....	1.60	1.55	31,600
Bullion, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Central Ariz., Ariz	....	....	....	....	....	....	....	....	....	....	....	....	....
Columbia & Beaver	....	....	....	....	....	....	....	....	....	....	....	....	....
Cons. Imperial, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Con. Pacific, Cal	....	....	....	....	....	....	....	....	....	....	.30	....	300
Decatur, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Durango, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Eastern Oregon	.03	....	....	....	....	....	.03	....	.03	....	....	....	6,900
El Cristo, U. S. Col	6.25	6.00	6.13	6.00	6.00	5.63	6.00	5.63	6.00	....	6.13	5.88	6,155
Gold Placer, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Hortense	....	....	....	....	....	....	....	....	....	....	....	....	....
Julia, Nev	....	....	....	....	....	....	.70	....	....	....	....	....	400
Justice, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Kossuth, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Lacrosse, Colo	....	....	.12	....	....	....	.13	.12	....	....	....	....	1,000
Mexican, Nev	5.13	....	....	....	....	....	....	....	....	....	....	....	100
Middle Bar, Cal	1.00	.96	.99	.95	.94	.90	.90	.81	.82	.78	.80	....	30,900
New Germany, N.S.	....	....	....	....	....	....	....	....	....	....	....	....	....
New Pittsb'g, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
North Stand'd, Cal	....	....	....	....	....	....	....	....	....	....	....	....	....
N. Horn-Silv'r, Ut	....	....	....	....	....	....	....	....	....	....	....	....	....
Oneida Chief	....	....	....	....	....	....	....	....	....	....	....	....	....
Ori'nt'l&Mil'r, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
*Phœnix, Ariz	1.13	....	1.13	1.00	1.13	1.00	1.00	....	1.00	....	1.00	....	3,650
Potosi, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Rappahannk, Va	....	....	.22	....	.20	.19	....	....	.19	....	.19	....	3,600
Red Elephant, Colo	....	....	....	....	....	....	....	....	....	....	.04	....	300
Renfrew, N. S	....	....	....	....	1.45	1.40	1 50	1.45	1.60	1 55	1.60	....	1,800
Saint Kevin, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
San Sebastian	3.75	....	....	....	4.00	3.75	....	....	3.75	....	3.75	....	1,500
Santiago, U. S. Col	3.30	3.25	3.30	....	3.30	....	3.30	....	3.30	....	3.30	3.20	5,700
Security, Colo	7.38	6.88	7.75	6.38	9.00	7.00	7.00	6 50	7.13	6.88	7.25	7.00	31,635
Silver Cliff, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Silver Leaf	....	....	....	....	....	....	....	....	....	....	....	....	....
Silver Queen, Ariz	....	....	.07	....	....	....	....	....	....	....	.08	....	1,100
Stanislaus, Cal	1.90	1.85	1 85	1.75	1.80	1.70	1.80	1.70	1.75	1.65	1.65	1.55	1,800
State L'e, 1&4, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
" Nos. 2&3, Nev	....	....	....	....	....	....	.06	....	.06	....	....	....	1,200
Sutro Tunnel, Nev	.38	.37	.39	.36	.38	.35	.36	.35	.35	.34	.34	.32	22,850
Taylor Plumas, Cal	....	....	.04	....	.03	....	.04	....	.03	.02	....	....	5,300
Unadilla, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Union Cons., Nev	....	....	....	....	....	....	3.60	....	....	....	....	....	100
....	....	....	....	....	....	....	....	....	....	....	....	....	....

* Dealt in at the New York Stock Exchange Unlisted Securities.

BOSTON MINING STOCK QUOTATIONS.

NAME OF COMPANY.	June 10.		June 11.		June 13.		June 14.		June 15.		June 16.		SALES.
Atlantic, Mich	....	....	....	....	....	....	9 00	....	....	....	....	....	100
Bodie, Cal	....	....	....	....	....	....	....	....	....	....	....	....	....
Bonanza D	1.50	....	1.50	....	1 63	....	1.50	....	1.50	....	1.50	....	2,400
Boston & Mont., Mont	....	....	....	....	....	....	....	....	....	....	....	....	....
Breece, Colo	....	....	.57½	....	....	....	.57½	.55	....	....	....	....	700
Calumet & Hecla, Mich	212	....	212	....	210	....	210	....	....	....	210	....	59
Catalpa, Colo	.30	....	....	....	.35	.27½	....	....	.31	....	....	....	510
Central, Mich	....	....	....	....	....	....	....	....	....	....	....	....	....
Chrysolite, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Con. Virginia, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Dunkin, Colo	....	....	.45	....	....	....	....	....	.47½	....	....	....	200
Eureka, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Franklin, Mich	11.75	....	11.50	....	11.75	....	11.50	....	11.50	....	11.50	11.38	575
Freeland, Colo	....	....	....	....	.75	....	....	....	....	....	....	....	100
Helena, Mont	....	....	....	....	....	....	....	....	....	....	....	....	....
Honorine, Utah	....	....	....	....	....	....	....	....	....	....	....	....	....
Ironton Iron Co., Mich	....	....	8.50	....	....	....	8.50	....	....	....	....	....	150
Napa, Cal	1.50	....	....	....	....	....	1.25	....	1.25	....	1.25	....	950
Osceola, Mich	32.25	32.00	32.25	32.00	31.25	29.75	30.00	29.00	29.00	....	29.25	28.50	2,044
Pewabic, Mich	....	....	....	....	....	....	....	....	....	....	....	....	....
Quincy, Mich	49.00	48.50	....	....	....	....	....	....	51.00	....	....	....	76
Ridge, Mich	....	....	1.25	1.00	....	....	....	....	....	....	....	....	150
Robinson, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Silver King, Ariz	....	....	....	....	....	....	....	....	....	....	....	....	....
Standard, Cal	....	....	....	....	....	....	....	....	....	....	....	....	....
Stormont, Utah	....	....	....	....	....	....	.11	....	....	....	....	....	200
....	....	....	....	....	....	....	....	....	....	....	....	....	....

NAME OF COMPANY.	June 10.		June 11.		June 13.		June 14.		June 15.		June 16.		SALES.
Allouez, Mich	1.25	....	1.25	....	....	....	1.25	....	1.25	....	1.25	....	600
Arnold, Mich	....	....	.30	....	....	....	....	....	.10	....	....	....	300
Aztec	....	....	....	....	....	....	....	....	.07	....	....	....	200
Blue Ridge, Mich	....	....	....	....	....	....	....	....	....	....	....	....	....
Bowman Silv'r, Nev	....	....	....	....	....	....	....	....	.05	....	.05	....	1,000
Brunswi'k	1.55	....	1.60	1.57	1.60	1.55	1.60	1.57	1.60	1.57	1.55	1.52	5,850
Contentment	....	....	....	....	....	....	....	....	....	....	....	....	....
Con. Pacific, Cal	....	....	....	....	....	....	....	....	....	....	....	....	....
Crescent, Colo	.11	....	....	....	....	....	.11	....	....	....	.11	....	400
Cusi, N. Mex	....	....	....	....	11	....	.11	....	.11	....	....	....	1,000
Decatur, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Empire, Utah	....	....	....	....	....	....	....	....	....	....	....	....	....
Fern	....	....	....	....	....	....	....	....	....	....	....	....	....
Humboldt	....	....	....	....	.10	....	....	....	....	....	....	....	500
Huron, Mich	....	....	....	....	....	....	3.25	....	....	....	....	....	100
Kearsarge, Mich	....	....	....	....	....	....	....	....	6.00	....	....	....	30
Menard, Mich	....	....	....	....	....	....	....	....	....	....	....	....	....
Mono, Cal	....	....	....	....	....	....	....	....	....	....	....	....	....
National, Mich	....	....	....	....	....	....	....	....	....	....	....	....	....
Native, Mich	....	....	....	....	....	....	....	....	....	....	....	....	....
Oriental & M., Nev	....	....	.21	....	....	....	.21	....	.20	....	....	....	1,200
Phœnix, Ariz	....	....	....	....	....	....	....	....	....	....	....	....	....
Rappahannock, Va	.22	....	.22	....	.22	....	.22	....	.22	....	....	....	2,000
Security, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
South Side	....	....	....	....	....	....	....	....	....	....	....	....	....
Sutro Tunnel, Nev	.38	....	.39	....	.39	....	.38	....	.38	....	.37	....	2,325
Tamarack, Mich	.90	....	....	....	.92	.88	.90	.88	....	....	....	....	42

New York: Dividend shares sold, 32,195. Non-dividend shares sold, 167,040. Total New York, 199,235.
Boston · Dividend shares sold, 8,214. Non-dividend shares sold, 15,547. Total Boston, 23,761.

COAL STOCKS.

NAME OF COMPANY.	Par value of shares.	June 11.		June 13.		June 14.		June 15.		June 16.		June 17.		Sales.
		H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Barclay Coal	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cameron Coal	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Col., C. & I	100	....	....	50¼	49½	49⅝	48¼	50	48¾	49⅜	49⅝	49¾	49¼	8,375
Ches. & O. RR	100	....	....	....	....	....	....	....	....	....	....	....	....	....
*Chic. & Ind. Coal RR	....	....	....	....	....	58	....	....	....	....	....	....	....	200
Do. pref	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Col. & Hocking Coal	....	45⅝	....	44⅝	44	44	42½	42⅞	42½	44	43¼	44¼	43¾	5,280
Consol. Coal	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Cumb. C. & I	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Del. & H. C	100	104	103⅞	103¼	103	103	102½	102¾	102¼	103½	103	103¼	102¾	5,234
D., L. & W. RR	50	138¼	....	138¼	137¼	137⅝	136½	137⅝	136	137½	136¾	137⅝	136⅞	48,995
Elk Lick Coal Co	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Hocking Valley	100	33	32¾	32½	32	32	30½	31	....	31	....	....	....	1,835
Lehigh C. & N.†	50	49¼	....	49¼	....	49¼	49⅛	49⅜	49¼	49¾	49⅝	....	....	2,176
Lehigh Valley RR.†	50	56⅛	56	56	....	56	55⅞	56½	56	57	56⅝	....	....	1,668
L. & W. C. & I. Co	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Maryland Coal	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Marshall Con. Coal	....	....	....	26	25	25	24¾	25	....	25½	25	25	24¾	1,910
Montauk Coal	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Morris & Essex	50	....	....	....	....	....	....	....	....	....	....	....	....	....
New Central Coal	100	....	....	....	....	....	....	....	....	13	....	12¼	....	200
N. J. C. RR	100	81½	80⅞	81	80⅛	80½	79⅝	80	77	79¼	78⅝	80	78¾	28,085
N. Y. & S. Coal	50	....	....	....	....	....	....	....	....	....	....	....	....	....
N. Y., Susq. & Western	100	12	....	11	....	11½	11⅛	11⅛	....	11⅛	....	11½	....	925
Do. pref	100	....	....	35⅛	34⅛	34	33⅛	33¾	33⅛	33⅞	33¾	34	....	2,815
N. Y. & Perry C. & I	100	....	....	71¼	....	....	....	....	....	70	....	70¼	68⅛	400
Norfolk & Western R R	100	....	....	20	19⅝	19	....	20	19¾	20¼	20	....	....	1,540
Do. pref	100	52	51¾	51⅛	50⅛	50⅝	49⅛	50⅞	50	51⅛	50¾	51⅛	51⅝	10,998
Penn. Coal	50	....	....	....	....	....	....	....	....	....	....	....	....	....
Penn. RR.†	50	55⅝	55¼	55⅛	55⅛	55¼	55	55⅜	55¼	55⅝	55⅝	....	....	6,105
Ph. & R. RR.**	50	51¾	51⅝	51⅝	50¾	50⅞	49⅝	50⅞	49¼	50⅛	49⅝	50⅛	50	266,130
Spring Mountain	50	....	....	....	....	....	....	....	....	....	....	....	....	....
Tennessee C. & I. Co	100	39	37	39	38	38	36¾	37⅛	37¼	39⅛	38¼	39	38¼	6,410
Westmoreland Coal†	50	....	....	....	....	....	....	....	....	....	....	....	....	....

** Of the sales of this stock, 33,160 were in Philadelphia, and 232,970 in New York.
† The quotations for these stocks are not percentage, but actual price.
* Dealt in at the New York Stock Exchange, Unlisted Securities.

Total sales, 399,281.

San Francisco Mining Stock Quotations.

COMPANY.	CLOSING QUOTATIONS. June 10.	June 11.	June 13.	June 14.	June 15.	June 16.
Albion	....	....	....	....	....	....
Alpha	....	....	....	....	....	....
Alta	2¼	2¼	2¼	2⅛	2	1⅞
Argenta	....	....	....	....	....	....
Bechtel	....	....	....	....	....	....
Belcher	....	....	....	....	....	....
Belle Isle	....	....	....	....	....	....
Best & Belcher	7⅛	7⅛	7¼	7	7	7¼
Bodie	2¾	2¾	2⅞	2⅝	2⅝	2⅝
Bulwer	1¼	1¼	....	1¼	1⅛	1⅛
Chollar	6⅞	7⅛	7⅛	6⅝	7	6⅞
Con. Cal. & Va.	21¾	21¾	22	21¾	21⅝	20¾
Con. Pacific	.35	....	.30	....	.25	....
Crown Point	7¼	7⅛	7¾	7¼	7⅛	7¾
Eureka Cons	5⅞	6	6	....	6	5½
Gould & Curry	4¼	4¼	4⅛	3⅞	3¾	3⅞
Grand Prize	....	....	....	....	....	....
Hale & Norcross	5	5⅛	5⅛	4⅞	4¾	4½
Martin White	....	....	....	....	....	....
Mexican	5	4⅞	4⅞	4⅝	4½	4½
Mono	2¾	2¾	2¾	2½	2¾	2½
Mount Diablo	....	....	....	....	....	....
Navajo	1¼	1¼	1¼	1¼	....	1¼
Ophir	9⅞	....	9⅝	9½	9½	8¾
Potosi	7⅝	8	7⅞	7½	7⅝	7
Savage	5	5⅛	5⅛	5	5	4⅞
Scorpion	....	....	....	....	....	....
Sierra Nevada	4¾	4¾	4⅝	4½	4½	4¼
Sutro Tunnel	....	....	....	....	....	....
Tip Top	....	....	....	....	....	....
Union Cons	3¾	3⅞	3¾	3½	3½	3¼
Utah	2	2⅛	2	1¾	1⅝	1¾
Yellow Jacket	5⅛	5⅛	5⅛	5⅛	5¼	5⅛

ble as when it first started in its upward course, and therefore conclude that buyers have all they want for the present. Calumet & Hecla dropped two points, from $212 to $210. Tamarack also declined from $90 to $88.

Quincy steady at $49, and Franklin at $11⅛.

Kearsarge sold at $6 for small lot, and Atlantic at $9. Huron advanced $⅛, with sales at $3¼ assessment paid, and Ridge sold at $1 to $1¼.

In the silver stocks, Dunkin sold at 45@47½c.; Bonanza declined to $1⅛; Napa Quicksilver sold at $1⅛, and afterwards at $1¼.

There has been quite a boom in Brunswick Antimony stock, on reports that the company had at last found the secret of preparing the ore for successful use in the manufacture of rubber goods, and the stock, which closed last week at $8, was rushed up to $11½, and found ready purchasers, but on a disposition to realize profits it declined to $9¼, which was the last sale.

At the Mining Exchange, Bruniswick Gold Mining Company continues to be a feature, and the good reports from the mine warrant the belief that it will soon be on the dividend-paying list. The price has held firm at $1.55@$1.60, and with an active market again will no doubt advance to much higher figures.

Gogebic Iron Stocks.

The Gogebic mines are sendnig out the ore in a steady stream, which promises to bring the shipments this year up to 1,250,000 tons. The chief topic in the market was the great consolidation of Colby and Ashland property. The price allowed Mr. Ashland was $1,800,000. Further large transactions on the Gogebic are expected.

The reports from the mines are extremely favorable. The Aurora continues to develop extremely well. A new find is supposed to represent the north vein, but it may be merely the overlapping of the lenses in the south vein. The mine has already shipped 43,000 tons.

The Iron King, Bonnie, Anvil, and East Anvil are all opening up fine bodies of ore. To the west, in Wisconsin, the Kakagon has already shipped 5141 tons this year. The Nimikon reports an important find in the second cross-cut. The vein has widened to 43 feet, the hanging wall is still pitching to the north, and it looks as if the vein might have a width of 100 feet before it attains any great depth. The quality of the Gogebic ore maintains its high standard, though some of the mines, in too great a hurry to make shipping records before they had fairly passed through the cap rock, have made some shipments too high in silica. As depth is attained, the ore thus far in nearly all cases becomes purer.

Name.	No. of shares.	Pres't value.	Name.	No. of shares.	Pres't value.
Agozetic	40,000	$2.00	Iron Chief	40,000	$5.00
Akron	40,000	2.50	Kakagon	40,000	12.50
Aurora	100.000	20.00	Laura	40,000	2.50
Anvil	40,000	12.00	Montreal	20,000	32.00
Amazon	40,000	4.25	Moore	40,000	3.50
Ashland	40,000	40.00	Mikado	40,000	3.00
Atlantic	40,000	5.00	Minnewawa	40,000	4.00
Atlas	40,000	3.00	Nimikon	40.000	8.00
Berringer	100.000	2.50	Nort'n Chief	30,000	125.00
Bonnie	40,000	7.75	Norway	20,000	2,50
Blue Jacket	40,000	5.50	Norrie	30,000	30.00
Black River	20,000	20.00	Odanah	21,000	10.50
Bessemer	20,000	9.00	Old Nokomis	40,000	1 75
Brotherton	80.000	5.25	Pabst	250	2.000
Bourne	40.000	5.00	Puritan	40,000	20.00
Crown Point	100,000	2.00	Pence & Snyder I. D. Co.	100,000	4.50
Caledonia	40,000	2.50	Pence	40,000	5.00
Colby	*	*	Penokee & G. D. Co	5,000	600.00
Emma	40,000	3.00	Palms	40.000	7.00
Empire	40,000	2.75	Prospect Hill	40,000	3.00
Father Hennepin	40.000	4.00	Ryan	40,000	6.00
First National	80,000	4.50	Superior	100,000	3.25
Florence May	40.000	2.75	Section 33 Co	20,000	10.00
Germania	40,000	13.00	Sunday Lake	40,000	8.00
Gogebic I. Sy	200,000	3.75	Snider	40,000	5.00
Gogebic R. & I. Co. (fee)	40,000	5.00	Trimble	40,000	7.00
Gogebic	40,000	2.00	Tontine	40,000	3.50
Iron Belt	200,000	3.25	Union	40,000	2.50
Iron King	40,000	18.00	United I. & L Syndicate	200,000	.30
Ironton	40,000	10.00	*W L. & Min'l	90,000	1.25
Iron Prince	40,000	2.50	Valley	120,000	3.00
Ironsides	40,000	2.50			

*See Penokee & Gogebic Development Company. † Includes fee.

The shares of the above companies all have a par value of $25, excepting the Pabst, the Penokee & Gogebec Development Company, and the Northern Chief, which are $100 par, and the Superior and Wisconsin Land and Mineral Company, $10 par.

Pittsburg Stock Quotations.

Company.	H.	L.	Closing.
Allegheny Gas Co	$35.50	$35.50	$35 50
Bridgewater Gas	107.00	105.00	105.00
Chartiers Valley Gas Co	86.00	84.00	84.50
Consignee Mining Co	.90	.90	.90
Consolidated Gas Co	45.00	45.00	45.00
Forest Oil Co	95.00	95.00	95.00
La Noria Mining Co	5.50	5.00	5.50
Natural Gas Co. of West Va.	98.00	93.00	98.00
N. Y. & Cleve. Gas Coal Co.	45.00	43.50	43.50
Penn. Gas Co	26 00	26.00	26.00
Philadelphia Co	50.25	49.12½	50.00
Pittsburg Gas Co.	54 00	54.00	54.00
Silverton Mining Co	1.75	1 75	1.75
South Side Gas Co	27.50	27.50	27.50
Tuna Oil Co	65.75	64 50	64.75
W'tmoreld & Cambria Gas	48.00	48.00	48.00
Westinghouse Air-Brake Co.	115.00	115.00	115.00
Westinghouse Brake, Co. Lt.	53.00	51.00	51.00
Wheeling Natural Gas Co	38 00	37.00	37.75
Yankee Girl Mining Co	9.00	9.00	9.00

Highest and lowest prices during the week ended June 16th.

Deadwood-Dakota Mining Stocks.

Company:	H.	L.	Company:	H.	L.
Bullion	.07⅛	.04⅛	Mutual	.04	.04
Centre Shot	.02⅛	.01⅛	Pocahontas	.02½	.01
Cora	.12	.09⅛	Rattler	.28	.20
Eureka	.07	.04	Seabury Calkins	.20	.14½
Enterprise	.02	.01	Seg. Iron Hill	.10	.05
Hester A	.09½	.07	Silver Ridge	.02	.01¼
Iron Hill	1.85	1.72½	Spanish R	.06	.05
Jefferson	.15	.15	Uncle Sam	.25	.25
Liberty	.01	.01	U. S. Grant	.03⅛	.01½
Minna	.02	.01	West Virginia	.10	.07½

Highest and lowest prices bid and asked during the week ended June 11th.

St. Louis Mining Stocks. June 15.

[From our Special Correspondent]

The condition of the market remains unchanged, and no interest in mining stocks is shown at the present time. Granite Mountain has declined, and Adams is also a little lower. The prices of the other stocks dealt in show but little variation.

Company.	Bid.	Asked.
Adams, Colo	$2.00	$2.50
Bremen, N Mex	.08	.12
Cleveland, Colo	.20	.25
Dinero, Colo	.35	.40
Granite Mountain, Mont	55.00	56.50
Hope, Mont	*6.75	*7.00
Ideal, Colo	.07	.09
Juniper	.45	.50
Laclede, N. Mex	....	.05
Lochiel, N. Mex	.07	.08
Peacock, N. Mex	.55	.60
Quincy, Colo	...	.04
Sheridan, N. Mex	.30	.35
Small Hopes Cons., Colo	7.50	8.00
St. Louis & Mex. Imp., Mex	.65	.75
St. Louis & Yavapai, Ariz	.55	.65
West Granite, Mont	.65	.75

* New stock. Par value, $10.

London Stock Quotations of American Mines.

Company.	Highest.	Lowest.
Alturas Gold, Idaho	18s.	16s.
Arizona Copper, Ariz	14s.	13s. 9d.
Birdseye Creek, Cal	14s.	12s.
California Gold, Colo	9s.	8s.
Carlisle, N. Mex	22s. 6d.	17s. 6d.
Centennial, Cal	12s.	10s.
Charles Dickens, Idaho	20s.	15s.
Colorado United, Colo	£1¼	£1
Denver Gold, Colo	3s.	2s.
Eberhardt, Nev	10s. 6d.	9s. 6d.
Empire, Mont	£3⅜	£3⅛
Flagstaff, Utah	11s.	9s.
Garfield, Nev	30s.	27s. 6d.
Gold Hill, N. C	3s. 6d.	3s.
Kobinoor, Colo	3s.	2s.
La Plata, Colo	5s 3d	4s. 9d.
Montana Lt., Mont	£8⅝	£8⅜
New California, Cal	....	....
New Emma Silver, Utah	7s. 3d.	8s. 9d.
New Hoover Hill, N. C	4s.	3s.
New La Plata, Colo	5s. 3d.	4s. 9d.
Plumas Eureka, Cal	£¾	£½
Richmond Con., Nev	£6½	£6
Ruby & Dunderberg, Nev	7s. 9d.	7s. 3d.
Russell Gold, N. C	10s 6d.	9s. 6d.
Sierra Buttes, Cal	£1¼	£1
Union Gold	17s. 6d	12s. 6d.
U. S. Gold Placer, Colo	£1	£¾
Viola Lt., Idaho	£2½	£2¼
Quoted in Paris.		
Lexington, Mont	†40.00	†40.00
" (organizers' shares)	†2.00	†2.00

† Francs.

Highest and lowest prices during week ended June 4th

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See also page XIX.

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